MINERAL INDUSTRY SURVEYS

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Walter J. Hickel, Secretary

John F. O'Leary, Director

JANUARY 1970

PETROLEUM PRODUCTS SURVEY
NO. 63

MOTOR GASOLINES, SUMMER 1969

MOTOR GASOLINES, SUMMER 1969

by

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INTRODUCTION

This report on the properties of motor fuels sold through service stations in the United States was made in accordance with a cooperative agreement between the American Petroleum Institute and the Bureau of Mines of the United States Department of the Interior. By agreement with the American Petroleum Institute, identification of the items is confidential.

It presents analytical data for 4,959 samples, representing the products of 69 companies. The samples were collected by companies during June, July, and August 1969. As in previous surveys, the gasolines covered by this survey include those from both large and small suppliers. The data were obtained by laboratories of various refiners, motor manufacturers, and chemical companies and submitted to the Bureau of Mines for compilation. A list of the motor-gasoline survey reports published during the past 10 years is on page 4.

SUMMARY

A summary of the characteristics of motor gasoline for summer 1969 is presented in table 1, and for comparison, a similar summary for summer 1968 is shown in table 2. Trends of some of the more important characteristics over a period of years are shown in figures 1 and 2. The following tabulation indicates trends of national average octane numbers during recent years:

	Regular-price		Premium-price	
	Octane number		Octane number	
	Research	Motor	Research	Motor
Winter 1967-68	93.8	85.9	99.9	91.9
Summer 1968	93.8	86.0	99.9	91.9
Winter 1968-69	93.8	86.3	99.8	92.2
Summer 1969	93.8	86.1	99.9	92.0

Regional average octane numbers of regular- and premium-price fuels may be found in tables 3 and 4.

Included in table 5 are data for three other grades of motor gasoline as follows:

	Third grade	Intermediate grade	Super-premium
Brands	2	2	2
Items	14	12	8
Samples	86	77	9

Analyses for third grade motor gasoline were shown in Bureau of Mines survey reports during the late thirties and early forties. Tabulating data for this grade was resumed in the survey of summer 1963, and data for the intermediate grade fuels were included in the same survey. Super-premium motor gasolines have been represented in the survey reports since summer 1956, but the samples and brands have decreased greatly since the survey of winter 1960-61.

TERMS, TABLES, AND FIGURES

Terms used in the surveys have the following meanings:

District: The designation of a marketing area for collecting samples and data. The present arrangement of 17 districts, developed by the CFR Committee, 1/ was selected with reference to the specifications on motor gasolines, refinery locations, population centers, and arteries of commerce such as navigable rivers. The States or parts of States in each district are indicated in the headings of table 3 and are shown in figure 5.

Brand: The gasoline sold in a given price group under a given trade name.

Item: The index number assigned to a given brand in a given district. The data for each item represent the average of those submitted for that brand in that district. The number of samples represented follows the item number.

Sample: The individual supply of gasoline obtained at the service station and analyzed in the laboratory.

Table 3 presents by districts data for gravity, sulfur, gum, lead, research- and motor-method octane numbers, Reid vapor pressure, and distillation characteristics of the motor fuels collected. The tests were made according to procedures standardized by the American Society for Testing and Materials. 2/

Corrosion test results are not included in the district tables as all the reported figures are "1," according to the corrosion scale given in table 1 of ASTM D130-68. 2/

1/ Coordinating Fuel and Equipment Research Committee (formerly the Coordinating Fuel Research Committee) of the Coordinating Research Council, Inc. From 1935 to 1948 the motor-gasoline surveys were conducted under a cooperative agreement between the Coordinating Research Council and the Bureau of Mines.

2/ American Society for Testing and Materials, 1969 Book of ASTM Standards, Part 17, Petroleum Products -- Fuels; Solvents; Burner Fuel Oils; Lubricating Oils; Cutting Oils; Lubricating Greases; Hydraulic Fluids, Philadelphia, 1969, 1,180 pp.

Gum test data are reported to the nearest whole figure. The distillation temperatures, corrected to barometric pressure at sea level, are on the percent evaporated basis.

Average values appear at the foot of the data columns in table 3 for the respective grades of fuel shown in each district. These values are arithmetical averages of the data shown for the items and were computed without reference to the total number of samples represented.

The district averages from table 3 are assembled in table 4. The third column in table 4 headed "Items (brands)" indicates the number of brands in the districts whose averages are here summarized. The figures at the foot of each column of data are national averages based on 17 districts.

Table 5 shows data, from their respective districts, for third grade, intermediate grade, and super-premium motor gasolines.

Figures 1 and 2 illustrate trends in the national averages of certain properties of regular- and premium-price gasolines, respectively, since summer 1946. Averages for the winter surveys are plotted on the lines representing the years and for the summer surveys between the lines. Octane-number points are connected for successive surveys, but those for Reid vapor pressure and distillation temperatures are connected by season and appear as two lines on each chart. Charts showing plots of these properties from 1935 (except winter 1941-42 and summer 1942) may be seen in the survey report on motor gasolines for winter 1964-65 and in reports preceding that issue. 3/

Figures 3 and 4 illustrate distribution (frequency) of octane values by numbers of samples for all grades of fuel represented. Each bar represents one-half octane number.

The districts, locations, and numbers of samples of gasoline represented are listed in table 8 and shown on the map, figure 5, facing the table. The locations are named for the principal cities in the respective vicinities, and include suburbs and neighboring communities. The area of the circle at each location is proportional to the number of samples obtained. The segments of the large circle in the lower left corner, drawn to the same scale, represent the numbers of samples from the different districts. The summary at the end of table 8 lists by district the number of locations, samples, and the percentages of the latter based on the total reported.

3/ Blade, O. C., Motor Gasolines, Winter 1964-65. Bureau of Mines Petroleum Products Survey No. 40, 38 pp. (in cooperation with the American Petroleum Institute).

In tables 6 and 7 are tabulated by whole octane ratings the cumulative percentages of samples of all grades for each district by the research- and motor-methods, respectively.

SIGNIFICANCE OF DATA

This report does not discuss the significance of the data presented. Reference may be made to the ASTM specification 4/ for motor gasoline and its appendix, "Significance of ASTM Specifications for Motor Gasoline," at a technical library.

LIST OF MOTOR-GASOLINE SURVEY REPORTS, 1959-69

Authors	Season and Year	Report No.	Published	Pages
In cooperation with the American Petroleum Institute:				
Blade, O. C.	Winter 1958-59	PPS No. 10	June 1959	33
Do.	Summer 1959	PPS No. 12	Jan. 1960	31
Do.	Winter 1959-60	PPS No. 15	June 1960	33
Do.	Summer 1960	PPS No. 17	Dec. 1960	34
Do.	Winter 1960-61	PPS No. 20	June 1961	34
Do.	Summer 1961	PPS No. 22	Jan. 1962	32
Do.	Winter 1961-62	PPS No. 25	June 1962	33
Do.	Summer 1962	PPS No. 27	Jan. 1963	32
Do.	Winter 1962-63	PPS No. 30	June 1963	32
Do.	Summer 1963	PPS No. 33	Jan. 1964	35
Do.	Winter 1963-64	PPS No. 35	June 1964	40
Do.	Summer 1964	PPS No. 37	Dec. 1964	40
Do.	Winter 1964-65	PPS No. 40	July 1965	38
Do.	Summer 1965	PPS No. 43	Jan. 1966	39
Do.	Winter 1965-66	PPS No. 45	June 1966	38
Do.	Summer 1966	PPS No. 48	Dec. 1966	38
Do.	Winter 1966-67	PPS No. 50	June 1967	38
Do.	Summer 1967	PPS No. 53	Dec. 1967	38
Do.	Winter 1967-68	PPS No. 55	June 1968	39
Do.	Summer 1968	PPS No. 58	Jan. 1969	38
Do.	Winter 1968-69	PPS No. 60	July 1969	38
Blade, O. C. and Shelton, Ella Mae	Summer 1969	This report		

4/ American Society for Testing and Materials, Tentative Specifications for Gasoline (D439-68T): 1969 Book of ASTM Standards, Part 17 (see footnote 2), pp. 167-176.

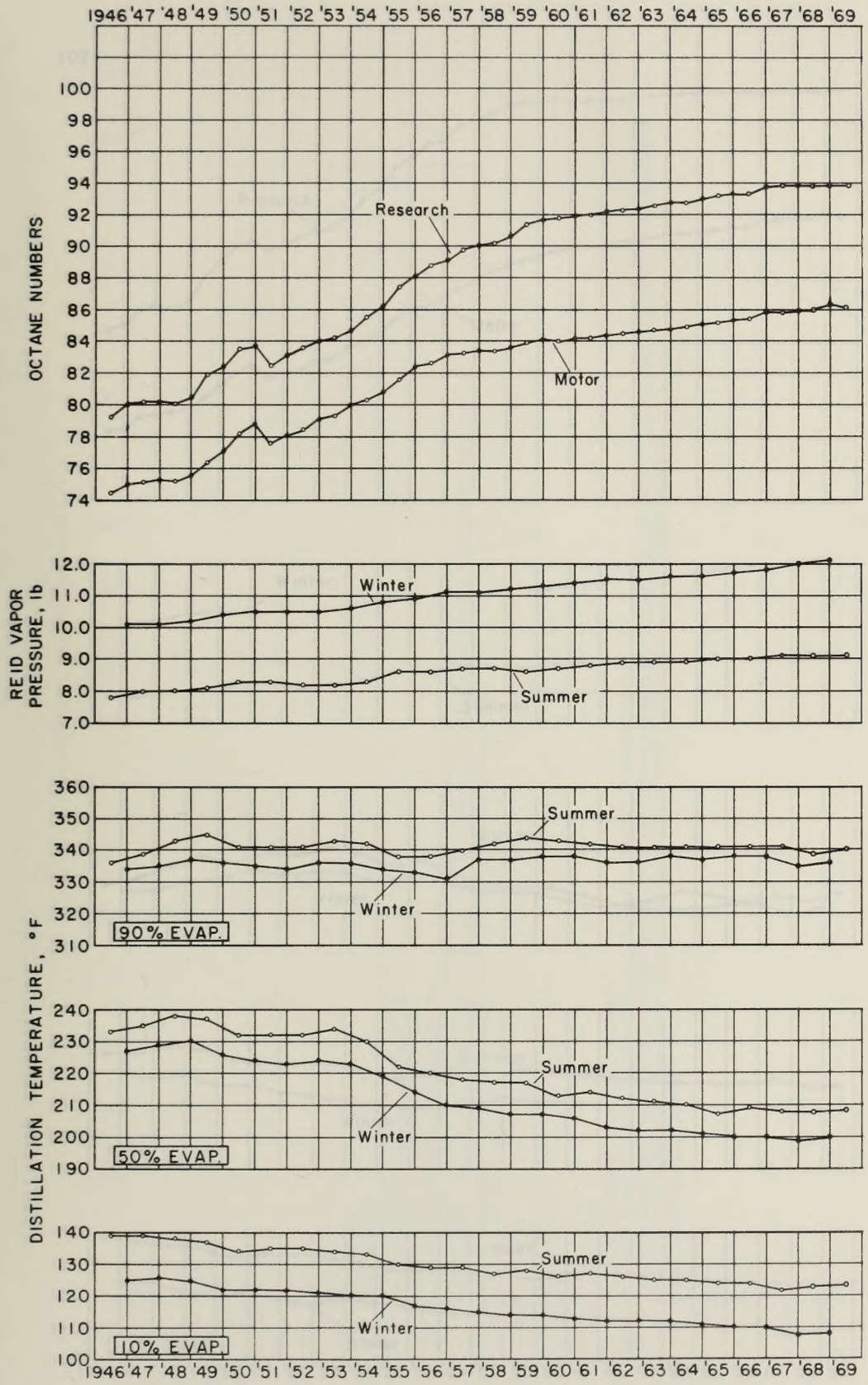
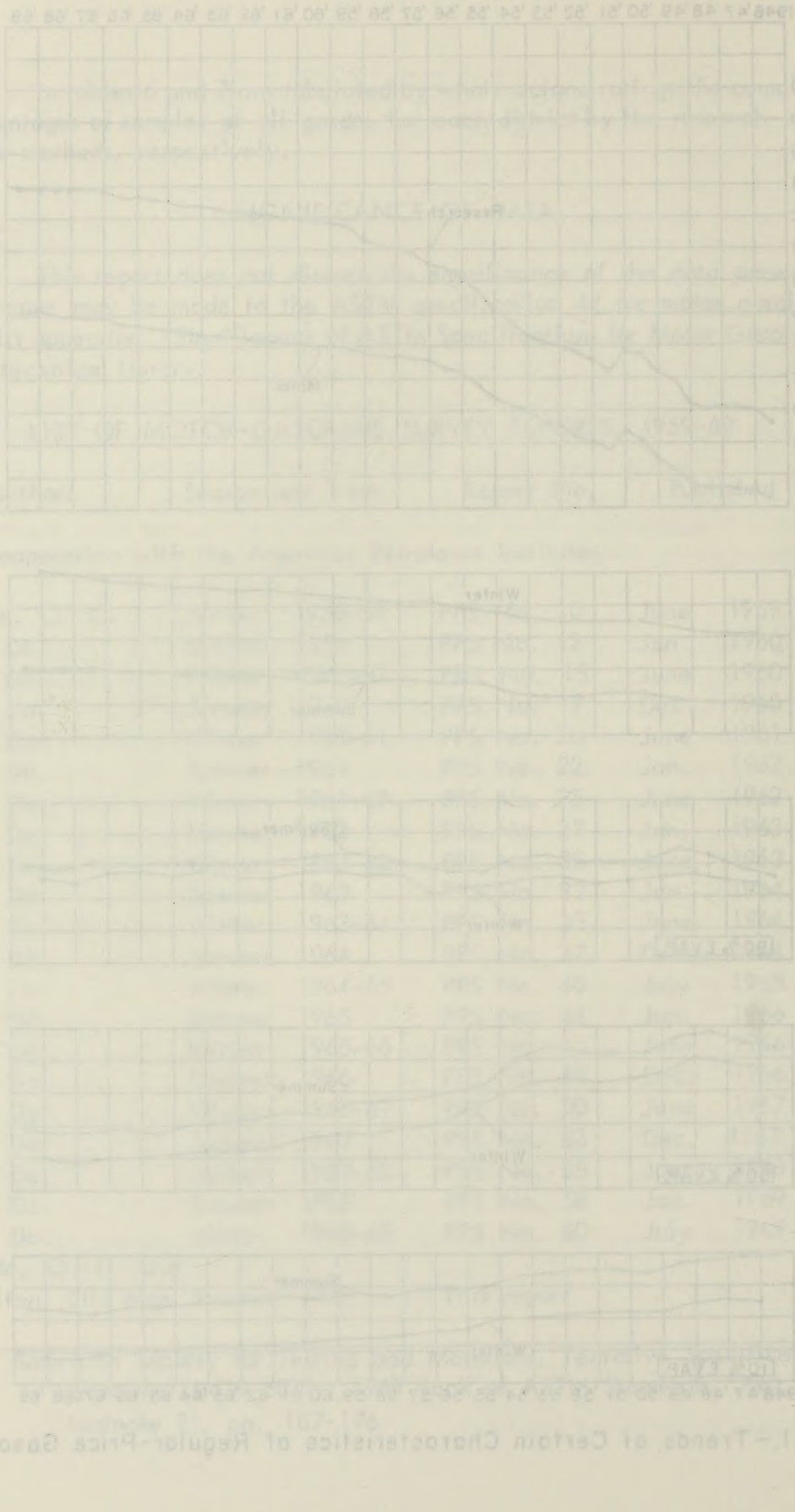


FIGURE 1.–Trends of Certain Characteristics of Regular-Price Gasolines.



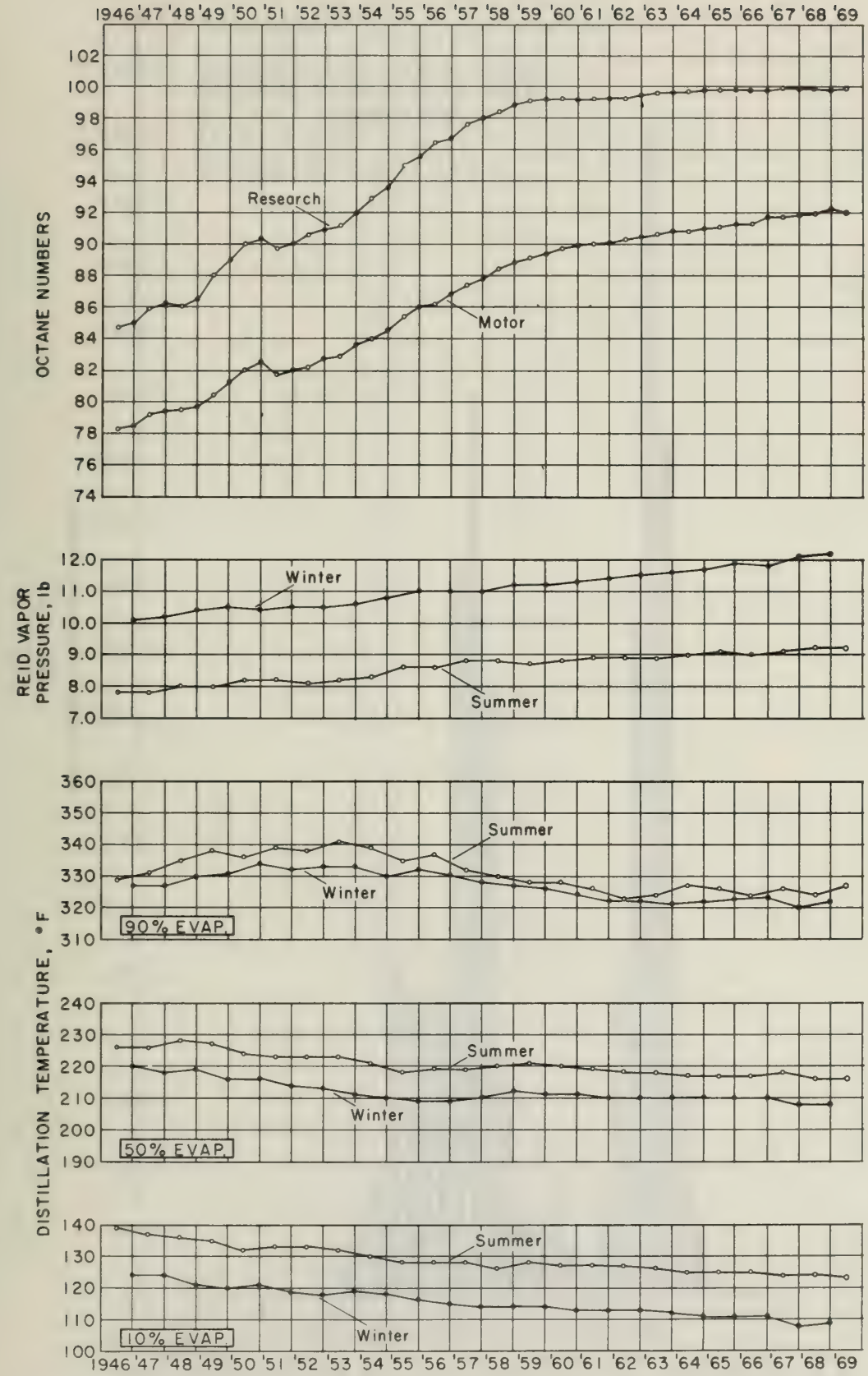


FIGURE 2.—Trends of Certain Characteristics of Premium-Price Gasolines.

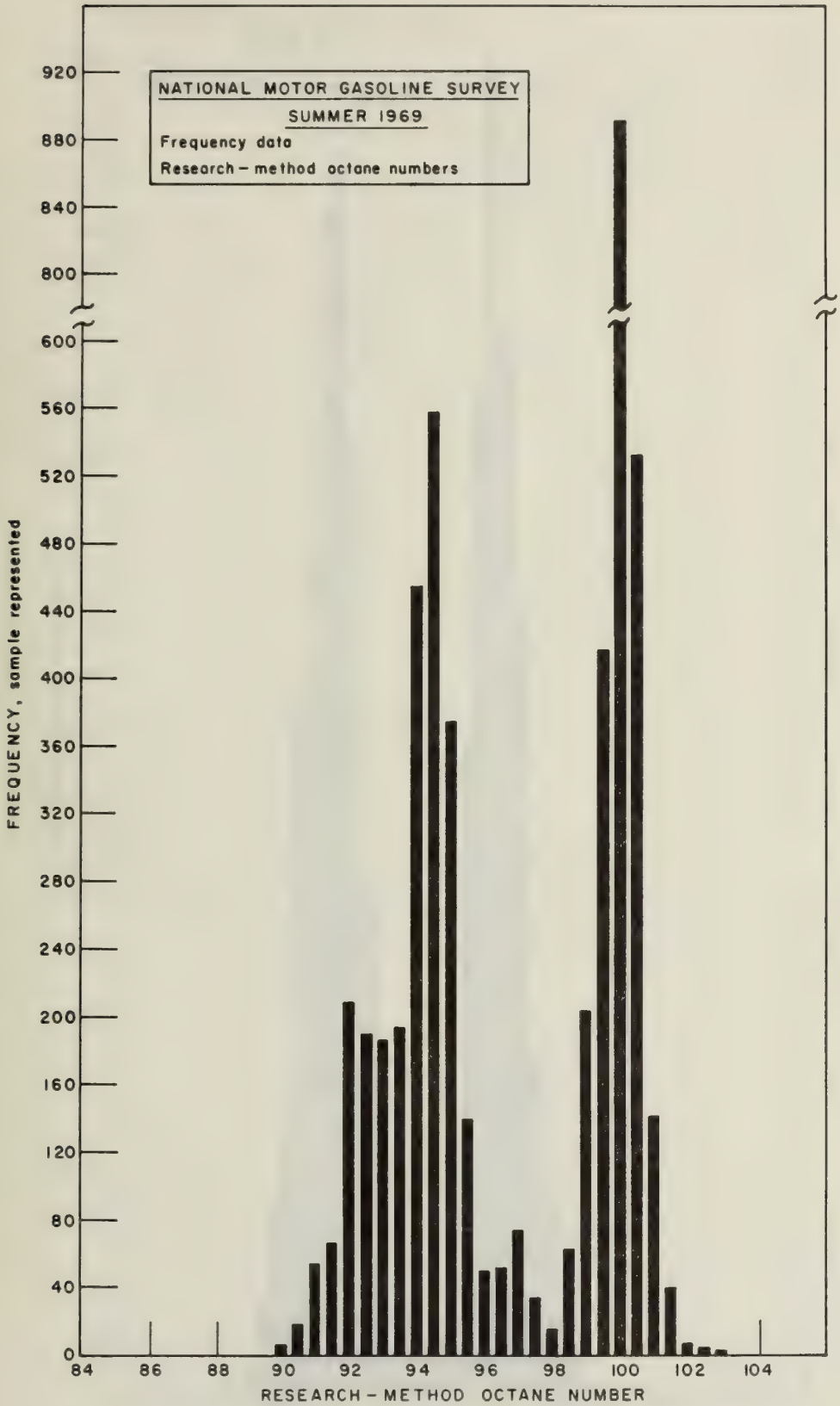


FIGURE 3.– Distribution of Research-Method Octane Numbers.

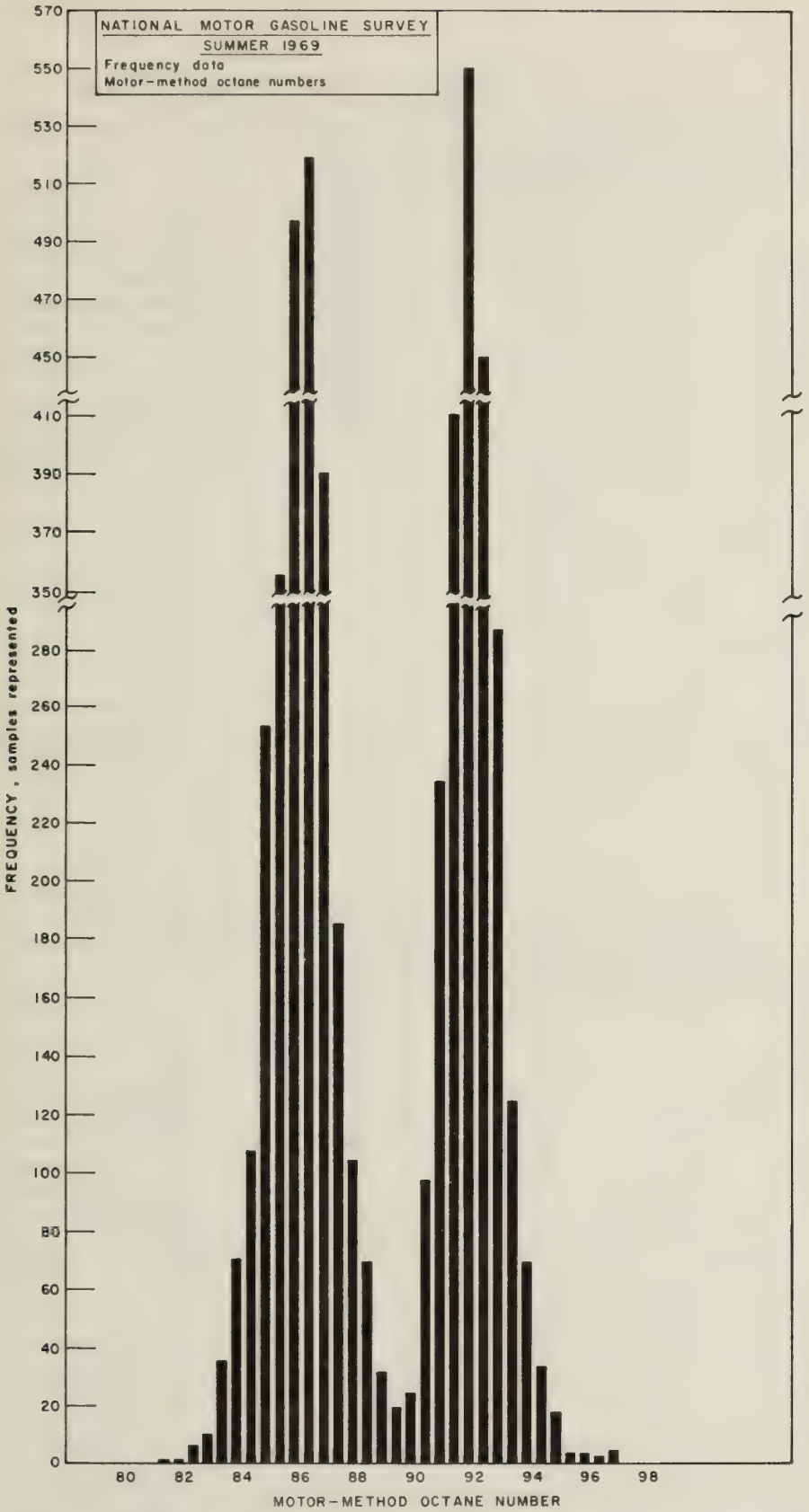


FIGURE 4.- Distibution of Motor - Method Octane Numbers.

TABLE 1. - Summary of values, motor gasoline survey, summer 1969

Test	ASTM method	Regular-price gasoline Average	Premium-price gasoline Average
Gravity ° API	D287	61.1	60.9
Corrosion No.	D130	1	1
Sulfur content wt percent	D1266	0.042	0.022
Gum mg per 100 ml	D381	1	1
Lead g per gal	D526	2.48	2.89
Octane number, Research	D908	93.8	99.9
Octane number, Motor	D357	86.1	92.0
Reid vapor pressure lb	D323	9.1	9.2
Distillation test on evaporated basis	D86		
Initial boiling point ° F		92	91
5 percent		110	108
10		123	123
20		143	146
30		163	170
50		208	216
70		262	259
90		340	327
95		373	359
End point		414	406
Residue vol percent		1.0	0.9
Distillation loss		1.3	1.4

TABLE 2. - Summary of values, motor gasoline survey, summer 1968

Test	ASTM method	Regular-price gasoline Average	Premium-price gasoline Average
Gravity ° API	D287	61.1	60.9
Corrosion No.	D130	1	1
Sulfur content wt percent	D1266	0.042	0.023
Gum mg per 100 ml	D381	1	1
Lead g per gal	D526	2.45	2.87
Octane number, Research	D908	93.8	99.9
Octane number, Motor	D357	86.0	91.9
Reid vapor pressure lb	D323	9.1	9.2
Distillation test on evaporated basis	D86		
Initial boiling point ° F		93	93
5 percent		110	110
10		123	124
20		143	147
30		163	171
50		208	216
70		261	257
90		339	324
95		372	355
End point		413	403
Residue vol percent		0.9	0.9
Distillation loss		1.4	1.4

District 1

TABLE 3. - Motor gasoline survey, summer 1969
(Average values of different brands)

Northeast area: Maine, Massachusetts, New Hampshire, Vermont, and northern New York

Regular-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100ml	Lead, ASTM D526, g/gal	Octane number: Research, †ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Loss
1	7	58.6	0.018	1	2.28	95.0	86.9	9.1	88	108	124	147	169	218	275	345	376	418	1.1	1.6
2	4	60.5	.032	1	1.93	94.8	87.0	9.6	90	102	116	135	157	212	276	353	383	418	.8	1.8
3	3	62.4	-	-	-	95.0	86.3	10.6	97	107	117	135	155	203	263	329	358	405	1.1	2.1
4	2	61.4	.032	1	2.61	94.4	86.9	9.8	86	98	113	134	154	201	261	342	374	413	1.0	2.0
5	3	62.1	.028	1	2.62	94.4	86.9	8.7	91	106	121	140	160	201	257	343	382	418	.9	1.6
7	7	60.3	.026	0	1.44	94.8	85.7	10.4	84	105	120	139	161	210	263	339	374	414	1.0	1.8
6	2	62.8	.036	0	3.23	94.5	86.7	9.0	92	112	124	142	160	195	244	312	342	394	.6	1.4
9	7	60.4	.034	1	1.97	94.9	85.9	9.3	87	107	122	143	164	212	267	340	373	414	1.1	1.5
8	5	61.4	.036	1	2.59	94.6	86.7	9.8	90	104	119	139	159	205	265	347	376	416	.9	1.6
10	4	62.4	.102	1	2.68	96.0	85.0	8.8	85	105	116	135	153	197	260	351	382	414	1.1	1.0
11	1	58.6	.031	0	3.09	95.4	87.6	9.1	83	98	118	142	167	216	271	347	372	410	1.0	2.0
13	3	61.5	.048	1	1.23	95.3	85.8	9.4	94	108	121	140	160	203	265	354	381	410	.8	1.2
12	5	62.0	.050	2	3.02	95.2	86.3	10.2	85	108	124	145	166	209	260	341	378	423	1.2	1.9
15	3	58.9	.061	2	3.33	94.8	86.4	8.8	90	107	123	146	168	220	277	345	379	419	1.1	1.7
14	4	61.8	.031	1	3.23	94.7	86.9	9.9	91	108	123	143	161	199	246	319	350	401	.9	1.6
AVERAGE		61.0	.040	1	2.52	94.9	86.5	9.5	89	106	120	140	161	207	263	340	372	412	1.0	1.7
SAMPLES	60																			

Premium-price gasoline

16	3	61.5	0.038	0	2.08	100.5	91.3	9.9	90	106	122	144	168	213	252	313	340	386	0.8	1.2
17	5	58.2	.020	1	3.21	100.8	91.3	10.2	84	108	123	146	171	218	268	336	369	415	1.1	1.6
18	1	60.5	.032	1	2.24	101.3	90.7	9.1	86	100	117	139	165	212	251	302	328	378	1.0	2.0
19	4	49.1	.009	0	* .00	101.2	90.3	10.4	88	107	127	161	199	246	277	328	358	400	.8	2.0
20	7	60.5	.020	1	2.74	100.7	91.4	9.9	86	106	121	143	167	217	263	331	362	407	1.1	1.9
21	5	61.4	.042	1	3.10	100.6	91.6	9.8	88	100	116	139	163	216	259	332	365	412	.9	1.6
22	7	64.6	.016	0	2.65	100.4	92.3	10.4	83	104	119	139	161	209	256	323	354	400	1.1	1.6
23	2	59.2	.026	0	3.26	100.5	91.4	9.4	87	102	118	142	170	225	274	325	355	400	.8	2.2
24	3	57.8	.013	1	2.83	100.3	91.9	8.6	89	106	121	147	174	230	275	330	357	409	1.0	1.6
25	1	61.7	.021	1	3.14	100.7	91.5	10.2	85	95	109	133	159	209	252	320	354	392	1.0	2.0
26	3	62.1	-	-	-	99.8	92.0	10.4	91	104	114	133	155	213	263	324	370	409	1.1	1.5
27	4	61.1	.012	1	2.65	100.2	91.7	9.1	91	104	119	141	163	214	262	332	364	406	1.1	2.0
28	7	61.1	.016	1	2.35	100.3	91.9	9.6	90	108	123	145	167	215	262	329	362	413	1.2	1.6
29	2	62.9	.019	2	3.12	99.9	92.1	9.2	88	101	118	140	162	204	241	304	337	378	1.0	2.0
30	4	60.2	.022	0	3.51	100.3	91.6	10.0	85	101	115	139	165	224	272	325	355	399	.9	1.6
AVERAGE		60.1	.022	1	2.84	100.5	91.5	9.7	87	103	119	142	167	218	262	324	355	400	1.0	1.8
SAMPLES	58																			

† Research octane numbers above 100 determined by ASTM D1656. *Not included in average for lead.

District 2

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

Mid-Atlantic Coast area: Rhode Island, Connecticut, New Jersey, Delaware, Maryland, Virginia, central and southern New York, and eastern Pennsylvania

Regular-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100ml	Lead, ASTM D526, g/gal	Octane number: Research, ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid	Percent: Loss
31	8	59.3	0.037	1	2.20	95.0	86.9	9.5	94	110	124	149	172	219	273	352	328	406	0.9	1.4
32	22	61.3	.047	1	2.49	94.7	86.6	9.8	90	107	122	143	165	206	261	343	378	420	1.0	1.9
33	22	61.1	.041	1	2.55	94.6	86.5	9.4	92	109	121	141	162	209	269	342	383	416	.9	1.2
34	21	60.2	.032	2	1.95	94.6	86.7	9.3	91	109	122	143	164	216	278	354	383	418	1.0	1.5
35	26	59.3	.037	2	2.43	94.8	86.7	9.0	92	110	124	145	166	216	277	344	376	418	1.0	1.4
36	21	62.0	.029	1	2.81	94.6	87.3	9.4	91	109	122	143	163	207	264	346	380	418	1.0	1.5
37	25	60.5	.052	2	2.24	94.9	85.8	10.1	90	108	123	144	166	212	270	353	386	421	.9	1.8
38	24	60.4	.087	1	2.59	94.5	86.5	9.7	90	109	123	144	165	214	275	354	386	423	1.0	1.4
39	29	60.3	.031	2	2.04	94.8	86.2	8.9	91	110	124	146	168	215	268	340	373	416	1.0	1.6
40	15	62.4	.073	2	2.88	95.6	85.8	9.0	93	110	121	137	153	192	255	346	378	416	1.0	1.4
41	8	61.5	.049	2	2.33	94.6	86.3	9.1	92	106	117	136	148	197	258	348	381	427	.8	1.2
42	15	61.3	.054	1	1.85	95.4	85.6	8.9	94	111	124	141	162	207	275	355	380	411	.9	1.4
43	5	57.9	.041	0	2.20	95.2	86.6	9.1	95	112	126	148	170	220	279	356	380	415	1.1	1.2
44	12	63.0	.027	2	2.65	94.6	87.4	9.4	93	109	119	135	151	194	259	338	369	418	1.1	1.5
45	3	61.6	.032	1	2.64	94.5	87.0	9.9	94	109	122	142	160	204	268	355	384	412	1.0	1.5
46	14	60.6	.043	2	1.70	95.2	86.0	9.6	92	109	122	142	162	211	270	343	371	407	.9	1.3
47	2	59.4	.047	2	2.37	95.6	86.2	9.9	96	112	124	150	168	219	277	337	366	407	1.3	1.0
48	3	62.7	.041	2	3.03	94.2	86.7	9.0	94	114	124	142	162	204	258	345	378	420	.7	1.3
49	11	61.5	.033	2	2.62	94.6	86.6	9.0	94	116	128	146	164	204	253	340	378	421	.8	1.2
AVERAGE		60.9	.044	2	2.40	94.8	86.5	9.4	93	110	123	143	163	209	268	347	376	416	1.0	1.4
SAMPLES	286																			

District 2 (Cont.)

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

Mid-Atlantic Coast area: Rhode Island, Connecticut, New Jersey, Delaware, Maryland, Virginia, central and southern New York, and eastern Pennsylvania

Premium-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100 ml	Lead, ASTM D526, g/gal	Octane number: Research, †ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Percent: Loss
50	28	60.2	0.017	2	2.83	100.3	91.4	9.1	91	111	125	148	170	215	259	322	355	408	1.0	1.5
51	24	57.9	.021	1	2.93	100.1	91.5	9.9	89	105	118	139	164	222	271	329	359	409	.9	1.2
52	26	62.7	.021	1	2.69	100.9	91.5	10.0	90	108	122	142	164	208	252	316	347	397	.8	1.5
53	21	58.5	.017	1	2.93	100.3	92.2	9.4	89	109	123	146	170	223	270	332	363	405	1.0	1.4
54	27	61.3	.018	1	2.66	100.3	92.0	9.2	90	109	124	145	167	216	261	323	354	401	1.0	1.5
55	20	61.1	.021	1	2.75	100.2	91.8	9.3	92	108	121	143	166	219	266	338	368	412	.9	1.4
56	22	60.6	.021	1	3.14	100.7	91.6	9.9	89	106	121	144	167	217	259	332	365	406	.8	1.7
57	23	59.1	.016	1	2.57	100.0	92.3	9.9	89	106	120	144	169	223	273	331	360	408	1.0	1.6
58	9	58.8	.020	1	3.09	101.2	92.5	9.3	96	114	127	150	172	219	264	328	357	398	.8	1.1
59	11	58.5	.016	2	2.90	100.2	91.1	9.3	93	110	126	150	174	229	277	337	369	407	.8	1.2
60	3	61.0	.015	3	2.93	100.2	92.3	9.2	87	103	116	136	156	206	254	325	360	410	.8	1.2
61	2	60.0	.031	1	3.52	100.4	90.9	9.4	91	109	121	142	164	216	261	325	349	398	1.2	1.1
62	14	59.3	.021	1	2.58	100.5	91.6	9.9	91	105	120	143	169	222	266	322	349	402	.8	1.5
63	2	60.8	.009	1	3.17	100.4	91.8	10.0	86	106	120	144	172	217	249	316	356	392	.4	1.6
64	12	62.3	.019	1	2.47	100.2	92.1	10.1	89	101	111	127	145	208	254	314	353	416	1.0	1.5
65	5	58.8	.029	0	3.47	101.0	91.7	9.0	93	111	123	145	166	211	252	315	341	386	.8	1.4
66	16	59.7	.051	1	2.20	100.7	91.3	9.4	90	108	123	146	171	221	261	313	335	369	.8	1.4
67	8	61.0	.027	1	2.78	100.7	91.7	9.9	85	102	117	139	165	218	259	333	367	408	.9	1.7
68	14	54.2	.011	1	* .00	101.4	90.6	10.0	89	107	124	154	188	237	266	320	344	379	.8	1.5
AVERAGE		59.8	.021	1	2.87	100.5	91.7	9.6	90	107	121	144	167	218	262	325	355	401	.9	1.4
SAMPLES	287																			

† Research octane numbers above 100 determined by ASTM D1656. * Not included in average for lead.

District 3

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

Southeast area: North Carolina, South Carolina, Georgia, Florida, Alabama, and eastern Tennessee

Regular-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100ml	Lead, ASTM D526, g/gal	Octane number: Research, ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Percent: Loss
69	8	61.1	0.032	2	2.42	95.0	86.5	9.0	88	106	117	135	154	198	255	339	373	415	0.8	1.0
70	18	60.2	.024	1	2.69	94.3	87.4	9.0	93	109	124	144	166	211	265	346	300	425	1.0	1.3
71	20	62.2	.045	1	2.60	94.2	87.0	8.9	96	110	123	142	161	207	262	332	364	411	1.0	1.6
72	24	60.3	.047	1	2.93	94.4	87.1	8.7	91	110	124	145	166	211	265	340	373	419	1.0	1.3
73	21	62.0	.032	1	2.72	93.9	86.5	9.0	93	108	123	144	165	210	263	342	377	421	1.0	1.3
74	33	59.3	.035	1	2.47	94.4	86.3	8.8	92	108	124	146	167	214	266	341	376	421	1.0	1.4
75	6	61.5	.025	2	2.66	94.9	87.0	9.1	91	112	124	144	163	207	259	335	363	407	1.0	1.1
76	15	61.1	.030	1	2.54	94.4	86.5	8.8	91	110	124	145	165	207	260	343	380	424	1.0	1.6
77	9	61.0	.036	1	2.06	94.6	86.2	9.0	90	105	117	137	155	199	258	342	374	412	.8	1.2
78	20	60.4	.031	2	1.72	94.8	85.9	9.4	87	108	122	143	164	209	263	341	376	420	1.1	1.5
79	1	61.0	.035	1	2.56	94.8	86.6	9.7	87	104	118	139	160	206	264	339	367	410	1.0	1.0
80	4	60.7	.050	2	3.31	94.4	86.5	9.7	84	96	112	136	159	211	266	344	377	412	1.0	2.0
81	3	63.3	.032	0	2.59	94.8	86.4	8.5	94	112	120	134	148	180	235	338	374	408	.7	1.3
82	12	63.0	.031	1	2.77	95.4	86.1	8.9	89	109	121	139	156	195	249	338	374	413	1.0	1.5
83	13	60.4	.037	1	2.34	94.4	86.2	9.4	91	105	118	138	159	205	267	348	378	415	.8	1.5
84	4	59.8	.032	2	1.56	94.7	86.8	8.7	89	106	120	140	162	212	271	346	376	419	1.0	1.6
85	3	61.1	.036	2	2.45	94.3	86.6	8.9	95	115	126	142	162	204	258	350	380	414	.9	1.1
86	2	61.3	.043	-	2.74	94.6	86.6	9.1	85	103	117	138	158	199	256	345	375	420	.8	.7
87	21	62.3	.034	2	3.05	93.9	86.8	9.0	91	108	123	144	165	211	264	339	374	418	1.1	1.2
AVERAGE		61.2	.035	1	2.54	94.5	86.6	9.0	90	108	121	141	161	205	260	341	370	416	.9	1.3
SAMPLES	237																			

District 3 (Cont.)

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

Southeast area: North Carolina, South Carolina, Georgia, Florida, Alabama, and eastern Tennessee

Premium-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100ml	Lead, ASTM D526, g/gal	Octane number: Research, † ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): Percent evaporated: IBP	5	10	20	30	50	70	90	95	End point	Percent: Resid.	Loss
88	1	62.8	0.035	1	2.97	100.5	91.7	9.3	87	104	119	141	164	210	251	316	346	402	1.0	1.0
89	20	63.5	.019	0	2.69	100.2	92.6	9.8	88	108	123	145	168	213	261	332	365	413	1.1	1.6
90	9	60.9	.022	2	2.97	100.3	91.8	9.0	91	108	119	139	162	210	252	312	349	397	.8	1.2
91	15	58.4	.013	1	2.86	100.2	92.3	8.8	87	108	123	147	170	217	264	331	365	413	1.1	1.2
92	6	60.3	.011	1	3.33	101.4	92.9	8.9	91	109	121	141	162	214	262	314	339	384	.9	1.2
93	33	61.6	.017	1	3.00	100.1	92.2	9.0	92	109	124	146	168	212	260	332	366	415	1.1	1.5
94	21	58.0	.015	0	3.29	100.1	92.3	9.1	93	107	122	145	167	216	267	336	367	418	1.0	1.2
95	24	62.9	.023	1	3.14	100.2	92.9	9.1	89	108	123	144	165	210	259	330	363	410	1.1	1.2
96	20	59.9	.019	1	2.87	99.9	91.9	9.1	95	108	121	141	161	214	266	330	360	407	1.0	1.3
97	18	60.7	.012	1	3.11	100.2	92.5	9.0	95	108	123	143	163	209	262	341	372	421	1.0	1.2
98	8	60.7	.013	3	2.88	100.0	91.8	9.2	87	104	117	138	162	213	258	316	348	397	.7	1.1
99	21	59.6	.029	2	3.25	100.2	92.4	9.2	90	108	123	143	165	212	264	339	372	418	1.1	1.1
100	2	59.5	.013	-	2.94	100.2	92.4	9.2	86	104	118	139	158	209	260	320	350	396	.8	1.2
101	3	59.8	.031	1	3.02	100.6	91.9	10.3	92	105	117	136	159	213	255	328	359	396	.7	1.3
102	4	58.9	.020	1	2.63	100.0	92.2	8.6	90	106	123	146	170	221	258	338	372	412	1.0	2.0
103	13	60.0	.020	0	3.16	100.4	91.7	9.5	88	104	118	141	165	217	267	332	360	404	.9	1.4
104	12	54.3	.010	1	* .00	101.6	90.8	9.8	84	107	120	146	175	223	264	330	359	400	1.0	1.5
105	3	61.1	.018	3	3.41	100.3	92.6	10.9	90	104	116	134	155	214	265	321	348	400	.9	1.6
106	3	59.2	.019	1	3.21	100.2	92.0	9.7	88	94	105	129	156	223	275	326	351	404	1.0	2.0
AVERAGE		60.1	.019	1	3.04	100.3	92.2	9.3	90	106	120	141	164	214	262	328	358	406	1.0	1.4
SAMPLES	236																			

† Research octane numbers above 100 determined by ASTM D1656. *Not included in average for lead.

District 4

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

Appalachian area: Ohio, West Virginia, western New York, western Pennsylvania, eastern Kentucky, and a small portion of Maryland

Regular-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100 ml	Lead, ASTM D526, g/gal	Octane number		RVP, ASTM D323, lb	Distillation, ASTM method D86										
						Research, ASTM D908	Motor, ASTM D357		Temperature range, °F (corrected to sea level)										Percent
									IBP	Percent evaporated								End point	Resid	Loss
										5	10	20	30	50	70	90	95			
107	6	60.6	0.025	1	2.39	94.9	87.1	10.1	88	106	119	140	161	206	262	337	370	408	0.9	1.4
108	12	61.2	.027	2	2.16	94.5	86.8	9.3	91	110	124	145	165	211	267	345	380	422	.9	1.5
109	9	62.0	-	-	-	94.9	86.3	10.6	90	103	113	132	152	202	264	343	374	415	1.1	2.0
110	3	58.1	-	-	2.26	94.8	86.6	9.6	92	112	128	152	178	232	290	366	396	440	.8	1.2
111	6	61.3	.028	2	2.15	94.8	87.1	10.3	88	107	119	139	157	199	259	343	378	420	.9	1.1
112	16	59.1	.016	2	2.00	94.6	87.2	9.4	91	110	125	149	172	222	280	354	385	417	.9	1.3
113	15	61.6	.043	2	2.50	94.5	86.7	10.6	88	105	119	140	161	206	262	339	372	417	.9	1.7
114	3	63.0	-	-	2.49	94.0	87.9	7.5	94	115	129	150	171	208	250	304	328	366	.6	1.4
115	3	61.7	.018	3	2.87	94.1	87.4	10.0	90	115	128	147	166	204	258	348	388	436	1.0	1.0
116	3	63.2	-	-	2.70	93.9	87.8	8.9	92	114	128	150	172	206	238	288	308	360	.6	1.4
117	19	61.3	.029	2	2.41	94.4	86.7	9.0	90	110	125	147	168	213	264	337	372	419	1.0	1.5
118	10	61.3	.032	2	2.89	94.0	87.1	9.8	90	108	121	141	163	211	270	353	391	435	.9	1.3
119	9	60.6	.022	2	2.59	95.4	86.4	9.5	89	107	120	140	162	212	270	342	373	410	.9	1.2
120	3	61.1	.035	2	2.24	94.5	86.5	9.2	93	112	126	149	168	207	257	345	383	422	.4	1.1
121	18	59.8	.024	2	2.30	94.5	87.1	9.5	90	108	123	145	165	213	268	340	372	415	1.0	1.5
122	8	62.3	.053	2	2.60	94.6	86.3	9.3	94	110	120	136	153	191	255	341	383	436	1.0	1.0
123	17	61.0	.026	1	2.59	94.7	87.1	9.1	92	110	124	145	167	211	267	345	379	419	1.1	1.1
124	3	62.5	-	-	2.98	93.5	88.1	9.2	90	108	122	144	166	211	259	320	348	390	.8	2.2
125	15	60.1	.023	2	2.25	95.1	86.7	9.6	89	106	118	139	161	209	266	347	375	423	.8	1.8
126	3	61.9	-	-	2.86	94.1	88.3	9.4	96	118	134	157	179	222	267	324	348	398	.7	1.3
127	10	60.7	.031	2	2.39	94.4	86.4	9.4	91	107	120	141	162	207	267	346	380	424	1.0	1.3
AVERAGE		61.2	.029	2	2.48	94.5	87.0	9.5	91	110	123	144	165	210	264	338	371	414	.9	1.4
SAMPLES	191																			

District 4 (Cont.)

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

Appalachian area: Ohio, West Virginia, western New York, western Pennsylvania, eastern Kentucky, and a small portion of Maryland

Premium-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100 ml	Lead, ASTM D526, g/gal	Octane number: Research, † ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid	Percent: Loss
128	10	62.9	0.018	1	3.15	100.3	93.4	8.8	94	116	133	159	186	224	263	345	380	421	0.9	1.2
129	19	58.6	.019	2	3.12	100.6	91.4	9.2	89	110	125	148	170	216	265	335	369	423	1.0	1.8
130	3	59.2	-	-	3.11	100.4	92.4	8.1	98	122	134	152	172	218	260	318	344	386	1.0	1.0
131	3	61.0	.012	1	3.06	100.5	92.7	9.4	95	115	128	148	166	207	258	346	372	420	.8	1.2
132	3	59.1	-	-	2.99	100.5	92.6	8.3	95	105	118	138	155	200	248	307	331	358	.6	1.4
133	15	61.5	.014	1	2.83	99.9	92.9	9.9	87	108	123	144	166	211	260	331	364	416	1.0	1.9
134	17	58.3	.012	1	2.36	99.9	91.6	9.3	90	110	125	149	173	225	267	326	357	400	.9	1.1
135	6	65.3	.014	0	2.68	100.2	93.1	9.7	89	104	120	143	168	212	249	317	350	398	.7	1.4
136	3	63.0	-	-	3.11	100.8	94.0	9.5	86	104	120	146	172	222	262	332	368	424	.7	1.8
137	9	65.1	-	-	-	99.9	92.4	10.7	91	104	114	133	154	206	248	317	354	403	1.1	1.8
138	12	65.4	.015	1	2.71	100.4	93.0	9.1	93	110	126	148	170	215	263	333	368	414	1.1	1.4
139	6	61.2	.024	1	2.92	100.3	92.4	9.3	86	101	119	145	174	226	269	337	368	418	.8	1.7
140	1	58.5	.014	2	2.28	100.7	93.2	9.2	95	115	133	161	188	224	256	326	364	414	1.0	1.0
141	10	63.7	.012	1	2.80	99.9	93.0	10.3	89	105	121	146	173	214	247	311	341	391	.9	1.5
142	3	58.5	-	-	3.20	100.2	92.9	10.0	96	114	128	148	168	208	254	312	344	400	.7	1.3
143	13	59.2	.012	2	2.87	100.5	92.0	9.8	90	109	124	149	176	225	270	332	357	403	.9	1.6
144	3	58.2	-	-	3.20	99.7	92.7	10.6	90	105	120	144	166	210	260	322	348	410	.6	2.4
145	17	60.6	.018	1	2.72	100.3	92.9	9.3	91	111	127	153	177	221	263	331	363	413	1.0	1.4
146	8	55.6	.009	1	* .00	101.0	90.5	9.4	90	107	123	155	191	240	272	329	352	382	.8	1.3
147	19	63.7	.013	1	2.70	100.4	92.9	9.2	91	109	124	146	168	213	257	325	361	406	1.1	1.5
148	3	59.1	.006	1	2.05	100.1	92.7	9.3	88	106	119	138	161	219	276	334	357	400	1.1	1.9
149	9	61.2	.017	2	3.24	100.6	92.2	9.1	87	110	126	150	177	221	257	332	370	403	.9	1.3
AVERAGE		60.9	.014	1	2.86	100.3	92.6	9.4	91	109	124	147	171	217	260	327	358	405	.9	1.5
SAMPLES	192																			

† Research octane numbers above 100 determined by ASTM D1656. *Not included in average for lead.

District 5

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

Michigan

Regular-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100ml	Lead, ASTM D526, g/gal	Octane number: Research, ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Percent: Loss
150	1	63.1	0.041	2	3.92	95.3	86.9	9.9	90	106	117	133	151	191	254	344	385	411	1.0	1.0
151	11	60.4	.094	2	3.02	95.7	85.6	9.4	91	108	123	144	165	211	264	339	371	416	.8	1.6
152	3	61.1	.066	2	2.66	94.2	85.6	10.0	94	118	134	157	180	220	272	344	380	420	.9	1.1
153	4	61.2	.055	2	2.89	94.5	86.3	9.7	93	113	126	145	165	208	270	353	387	428	.8	1.3
154	13	61.1	.034	1	2.48	94.4	86.5	9.7	90	110	125	145	166	211	264	340	374	421	.9	1.4
155	1	60.6	.009	2	2.66	93.9	87.2	10.2	88	105	119	143	167	214	253	315	353	391	1.0	1.0
156	1	65.0	.050	2	2.67	93.9	86.5	9.4	92	111	122	141	161	205	265	344	384	432	.6	1.4
157	14	61.5	.037	2	2.67	94.6	87.0	9.5	92	109	124	144	165	211	265	338	373	420	.9	1.4
158	7	63.1	.031	1	3.22	95.0	87.0	10.6	91	107	119	139	157	205	268	352	384	423	.7	1.0
159	5	59.4	.022	1	1.72	94.7	87.1	10.1	91	114	128	150	173	220	276	353	385	423	.7	1.0
160	23	60.0	.031	1	3.10	95.1	86.1	9.1	93	111	126	147	169	216	268	341	376	421	.9	1.4
161	10	64.9	.028	2	2.87	93.8	87.0	9.9	90	110	124	146	167	211	261	334	368	413	.8	1.4
162	3	61.5	.047	1	2.99	95.5	86.7	9.7	100	124	137	158	180	221	266	340	362	416	.8	1.2
163	3	60.9	.074	1	2.49	94.2	85.8	10.2	90	110	126	148	169	214	266	338	370	422	.9	1.1
164	3	61.6	.035	1	3.18	94.5	86.7	9.0	88	112	128	152	172	218	256	326	356	390	1.0	1.0
165	8	60.4	.042	2	2.62	95.4	86.2	9.8	91	109	122	144	166	218	274	345	378	418	.8	1.1
166	1	63.4	.068	2	2.36	95.2	85.5	9.4	85	101	114	133	152	195	252	345	377	420	1.0	1.0
167	3	61.5	.036	2	2.01	94.4	86.3	10.0	100	122	134	154	175	218	266	332	362	420	.7	1.3
168	3	-	-	-	-	93.9	86.4	10.0	87	109	124	146	167	212	265	341	376	423	1.0	2.0
169	4	61.9	.049	2	2.29	94.7	85.8	10.0	92	109	121	140	159	201	259	350	384	421	.8	1.0
170	1	63.6	.036	2	3.09	95.4	87.7	10.1	86	102	116	131	150	190	249	334	373	420	1.0	1.0
171	4	60.3	.057	2	2.04	94.9	86.5	10.0	95	116	128	148	168	215	273	351	387	424	.8	1.3
AVERAGE		61.7	.045	2	2.71	94.7	86.5	9.8	91	111	124	145	166	210	264	341	375	418	.9	1.2
SAMPLES	126																			

District 5 (Cont.)

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

Michigan

Premium-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100 ml	Lead, ASTM D526, g/gal	Octane number		RVP, ASTM D323, lb	Distillation, ASTM method D86										
						Research, †ASTM D908	Motor, ASTM D357		Temperature range, °F (corrected to sea level)										Percent
									IBP	Percent evaporated								End point	Resid	Loss
										5	10	20	30	50	70	90	95			
172	8	62.1	0.009	1	2.74	99.2	92.5	10.2	88	106	121	142	163	208	258	330	362	412	0.8	2.1
173	22	60.0	.016	1	3.20	99.5	91.8	9.6	92	110	126	148	170	213	262	334	370	425	1.0	2.0
174	5	58.4	.014	1	2.21	99.6	91.7	10.1	89	108	123	147	172	224	263	315	347	400	.7	1.1
175	7	61.9	.024	2	3.22	100.2	92.6	10.2	94	116	134	164	193	240	277	340	372	421	.6	1.4
176	13	59.7	.027	2	2.38	100.0	92.5	9.8	90	109	126	152	175	217	261	334	369	419	.9	1.9
177	1	63.1	.020	2	2.94	99.7	92.7	9.5	90	112	124	147	171	218	261	330	360	428	.3	.7
178	1	61.6	.027	1	2.59	99.8	92.9	9.1	87	101	117	138	159	205	264	349	390	434	1.0	2.0
179	12	64.0	.018	1	2.81	99.9	92.4	9.8	90	111	126	149	171	213	257	329	364	412	.9	1.8
180	4	64.0	.037	1	3.04	99.8	92.5	10.1	89	110	126	153	181	223	260	344	376	420	.7	1.3
181	3	61.2	.020	1	2.98	99.4	91.6	11.1	87	99	118	148	182	227	259	320	350	382	.9	2.1
182	10	61.7	.019	2	2.93	100.1	91.9	9.3	90	109	123	145	166	210	257	328	363	409	.8	1.5
183	1	61.6	.025	1	3.47	100.0	93.0	9.3	84	96	115	143	174	232	274	348	382	423	1.0	2.0
184	4	59.4	.011	2	2.92	100.4	92.5	9.8	94	112	128	154	179	230	277	335	362	420	.5	1.5
185	1	60.8	.025	1	3.04	100.1	92.9	9.9	82	100	114	143	175	234	274	325	362	422	1.0	1.0
186	4	61.0	.022	1	2.51	99.4	92.8	11.0	87	104	122	153	185	230	264	331	364	401	.7	1.8
187	2	-	-	-	-	99.6	91.0	9.8	86	109	123	145	166	211	263	337	375	423	.9	1.9
188	4	62.9	.025	2	2.92	100.0	92.9	10.1	89	110	124	148	172	212	252	329	368	416	.7	1.3
189	1	60.7	.013	1	2.74	98.9	92.0	9.7	82	96	115	144	178	223	257	322	355	413	1.0	2.0
190	8	62.9	.025	1	2.89	100.4	92.5	9.5	90	111	127	152	177	220	258	337	370	411	.8	1.0
191	3	64.3	.025	1	2.63	100.3	93.2	9.4	88	106	122	146	174	220	258	328	364	400	.8	1.2
192	3	64.5	.033	1	2.42	100.3	92.9	10.6	90	106	121	145	168	210	249	326	368	406	1.0	1.0
193	3	62.4	.013	1	2.86	99.6	92.8	10.7	82	104	120	148	178	224	256	322	360	392	.9	1.1
AVERAGE		61.8	.021	1	2.83	99.8	92.4	9.9	88	107	123	148	174	220	262	332	366	413	.8	1.5
SAMPLES	120																			

† Research octane numbers above 100 determined by ASTM D1656.

District 6

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

North Illinois area: Northern Indiana, northern Illinois, eastern Iowa, and Wisconsin

Regular-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100 ml	Lead, ASTM D526, g/gal	Octane number		RVP, ASTM D323, lb	Distillation, ASTM method D86										
						Research, ASTM D908	Motor, ASTM D357		Temperature range, °F (corrected to sea level)										Percent
									IBP	Percent evaporated								End point	Resid.	Loss
										5	10	20	30	50	70	90	95			
194	6	61.9	0.042	1	2.44	94.7	86.5	9.2	89	109	120	139	158	202	255	330	364	407	0.8	1.2
195	6	61.3	.062	2	2.83	95.3	86.4	9.2	92	108	121	142	163	211	264	336	362	388	1.0	1.3
196	3	60.4	.035	1	3.29	94.5	87.8	9.4	91	110	122	143	162	202	249	327	367	413	1.0	1.5
197	13	61.6	.028	2	2.68	94.7	87.1	9.4	90	107	120	140	161	208	263	336	370	415	1.0	1.6
198	5	61.5	.056	3	2.69	95.0	86.4	9.3	89	110	120	140	162	208	260	346	375	400	.9	1.1
199	6	61.8	.064	2	2.64	94.8	86.4	9.9	88	103	114	133	151	197	258	338	371	414	1.0	1.3
200	10	61.1	.024	1	2.62	94.2	86.8	9.3	89	107	120	140	160	206	259	331	359	399	.8	1.2
201	12	63.3	-	0	2.20	95.1	86.0	8.7	93	110	122	141	160	207	262	342	374	417	1.0	1.4
202	6	61.1	.060	2	2.62	95.0	86.6	10.2	87	107	118	140	161	204	257	338	370	406	.9	1.1
203	5	61.4	.049	2	2.67	95.4	86.9	9.4	91	108	121	143	164	209	261	337	372	415	1.0	1.5
204	16	60.5	.069	1	2.87	95.4	86.1	9.0	91	109	123	145	166	211	263	342	375	418	1.0	1.2
205	13	60.8	.029	0	3.00	95.1	86.5	8.6	91	109	123	145	167	215	268	339	369	409	.8	1.4
206	7	60.6	.058	2	2.68	94.2	86.6	9.4	88	108	122	142	164	210	265	341	371	411	.8	1.4
207	1	62.6	.048	1	2.51	94.0	86.0	9.5	92	109	119	135	151	191	250	338	378	417	1.0	1.5
208	3	60.0	.019	2	3.02	95.2	87.1	9.5	88	104	119	142	163	227	290	360	388	428	1.0	1.0
209	8	61.9	.053	1	2.30	94.8	85.4	9.9	87	107	121	142	163	207	261	341	380	420	.9	1.8
AVERAGE		61.4	.046	1	2.69	94.8	86.5	9.4	90	108	120	141	161	207	262	339	372	411	.9	1.3
SAMPLES	120																			

District 6 (Cont.)

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

North Illinois area: Northern Indiana, northern Illinois, eastern Iowa, and Wisconsin

Premium-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100 ml	Lead, ASTM D526, g/gal	Octane number		RVP, ASTM D323, lb	Distillation, ASTM method D86										
						Research, ASTM D908	Motor, ASTM D357		Temperature range, °F (corrected to sea level)											Percent
									IBP	Percent evaporated								End point	Resid	Loss
										5	10	20	30	50	70	90	95			
210	16	62.0	0.019	2	2.94	100.2	91.9	9.3	89	108	122	143	165	210	254	324	356	404	0.9	1.4
211	6	61.5	.025	0	3.08	99.9	92.0	9.6	92	108	123	145	167	212	261	338	372	418	1.0	1.4
212	6	63.4	.043	1	2.63	100.0	93.0	9.9	91	104	118	142	164	205	241	318	354	405	.8	2.2
213	11	64.6	.027	1	2.87	99.7	92.4	9.3	91	107	120	140	161	210	256	330	364	412	.9	1.4
214	9	61.5	.005	0	2.91	99.5	92.6	9.7	87	105	119	143	168	218	262	333	364	409	.9	1.7
215	7	59.1	.013	1	3.32	100.1	92.6	9.2	88	106	121	144	167	213	258	332	364	409	.9	1.6
216	5	61.9	.027	1	2.75	100.0	92.5	9.1	89	109	122	146	170	216	254	329	360	406	1.0	1.0
217	13	59.3	.012	1	2.48	100.2	92.7	9.4	91	110	127	156	181	221	261	331	367	415	1.0	1.7
218	3	60.9	.007	0	3.45	99.3	93.3	9.2	89	111	129	159	187	224	255	314	345	381	.8	1.7
219	6	59.7	.028	1	2.52	99.8	91.5	9.2	92	109	123	147	173	224	265	330	357	398	.9	1.2
220	6	64.7	.034	1	2.69	99.6	92.2	9.4	92	110	122	142	165	209	246	326	363	405	1.1	1.2
221	6	60.9	.002	1	2.62	99.4	92.4	10.4	87	105	120	145	173	220	262	331	365	414	1.0	2.2
222	3	61.5	.006	1	3.19	100.1	92.8	10.2	88	104	115	138	164	211	245	308	338	385	.8	1.7
223	1	60.5	.001	1	2.84	99.8	91.8	9.7	90	107	117	135	154	197	250	325	356	413	1.0	1.5
224	7	59.9	.026	0	2.93	99.6	91.8	9.4	91	105	119	140	164	217	264	333	365	413	1.0	1.7
225	14	59.8	.014	1	3.06	99.5	92.0	9.2	91	108	123	147	170	212	256	328	363	415	1.0	1.6
AVERAGE		61.3	.018	1	2.89	99.8	92.3	9.5	90	107	121	145	168	214	256	327	360	406	.9	1.6
SAMPLES	119																			

District 7

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

Central Mississippi area: Western Kentucky, southern Indiana, southern Illinois, and eastern Missouri

Regular-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100ml	Lead, ASTM D526, g/gal	Octane number: Research, ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Loss
226	3	60.0	0.025	2	1.90	94.9	86.5	8.5	92	118	132	158	178	218	258	330	364	424	1.0	1.0
227	1	63.3	-	-	2.83	94.2	87.5	10.2	96	107	120	140	158	199	254	345	382	425	.5	1.5
228	2	60.2	.020	2	1.85	94.5	87.0	9.7	91	110	124	146	170	219	278	355	389	422	1.0	1.0
229	5	60.6	.029	2	2.36	94.9	86.0	9.5	91	104	118	138	159	208	276	365	399	418	.8	.7
230	5	60.6	.042	1	2.98	94.6	86.1	9.4	90	111	122	141	162	210	272	355	384	419	.9	1.1
231	10	61.3	.029	2	2.67	94.7	87.0	8.9	91	109	122	142	162	210	265	342	373	413	.9	1.1
232	2	60.9	-	-	2.92	94.0	87.6	9.2	104	123	137	158	173	209	262	337	370	422	.6	.9
233	6	60.0	.023	3	3.14	95.1	87.3	9.3	94	110	123	145	165	216	280	351	382	425	.8	1.2
234	6	62.4	-	-	2.15	95.0	86.1	9.2	96	112	123	140	160	209	266	347	381	415	1.1	1.3
235	10	60.4	.026	1	2.54	94.5	86.9	9.2	91	111	124	146	167	214	268	338	367	409	.9	1.2
236	11	60.4	.029	4	3.11	94.2	86.7	9.1	94	113	127	149	168	211	260	332	362	399	.8	1.0
237	3	61.3	.038	2	2.18	94.9	86.1	10.0	90	110	123	144	169	218	270	346	380	406	.8	1.2
238	3	61.8	-	-	2.86	94.4	86.8	9.8	90	105	120	142	165	214	268	337	360	389	.9	1.6
239	3	61.3	.020	1	3.17	94.1	86.8	9.9	96	119	133	155	174	216	264	345	375	432	.7	.8
240	2	61.7	-	-	2.64	94.3	86.8	9.1	88	105	115	133	153	199	252	345	383	415	1.2	.8
241	3	61.6	-	-	2.81	94.3	85.3	9.0	90	109	120	139	158	203	257	357	393	411	1.0	1.0
242	3	60.2	.014	2	2.94	95.5	87.3	9.5	92	108	121	140	162	221	285	354	382	420	1.0	1.0
243	7	60.8	.072	3	3.02	95.1	86.2	8.8	90	110	123	144	164	206	258	342	374	409	.9	.9
244	2	61.1	.034	2	2.62	95.1	86.5	10.0	86	104	120	144	166	214	268	345	374	400	.9	1.1
245	7	60.5	.048	1	2.51	94.4	86.8	9.6	90	106	118	138	158	208	266	339	371	415	.9	1.5
246	7	60.5	.021	2	3.07	94.9	86.8	9.4	91	108	121	141	163	209	265	346	379	423	.9	1.0
AVERAGE		61.0	.031	2	2.68	94.6	86.7	9.4	92	110	123	144	164	211	266	345	377	415	.9	1.1
SAMPLES	101																			

District 7 (Cont.)

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

Central Mississippi area: Western Kentucky, southern Indiana, Southern Illinois, and eastern Missouri

Premium-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100ml	Lead, ASTM D526, g/gal	Octane number: Research, † ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Percent: Loss
247	2	59.7	-	-	3.04	100.0	92.6	9.0	90	106	123	154	183	229	262	321	350	406	1.1	0.9
248	3	55.5	0.027	1	3.69	101.0	91.3	9.6	96	118	136	164	192	239	288	360	392	442	1.0	2.0
249	3	57.7	-	-	3.01	99.4	92.7	9.6	88	107	122	149	177	228	269	324	351	388	.9	1.6
250	3	63.7	.036	1	3.36	100.6	92.3	9.1	90	115	127	147	172	214	250	318	348	388	.7	1.3
251	11	59.0	.013	1	3.18	99.7	91.8	9.1	90	109	123	146	170	213	255	320	348	398	.9	1.5
252	10	62.0	.027	1	2.99	100.0	92.7	9.3	94	109	122	143	164	209	253	317	346	395	.8	1.3
253	6	67.4	-	-	2.36	99.8	92.7	9.0	90	112	122	139	158	206	244	322	362	408	1.1	1.4
254	6	62.7	.018	2	3.54	100.5	93.0	9.3	94	114	128	149	171	213	249	316	349	399	.7	1.1
255	3	60.9	.011	1	3.01	100.6	92.2	9.1	98	117	130	149	167	200	250	326	360	416	.6	.9
256	10	58.7	.022	1	2.59	100.4	92.5	9.0	90	110	124	149	175	216	255	325	358	406	.9	1.3
257	5	60.8	.020	2	2.89	100.3	91.5	9.7	91	110	123	143	163	210	258	325	355	406	.9	1.2
258	5	64.7	.018	2	2.90	100.5	92.9	9.9	96	112	127	152	182	226	256	305	340	386	.7	.8
259	2	58.1	.021	2	2.21	100.1	91.3	9.9	86	106	122	148	174	226	266	318	346	402	.8	1.2
260	1	61.1	-	-	3.21	100.6	92.2	9.9	99	120	138	166	193	238	278	361	398	430	.5	1.0
261	3	66.0	.030	1	2.88	100.4	93.4	8.2	96	123	136	154	174	208	240	332	380	422	.9	1.1
262	7	59.1	.021	2	3.15	100.0	91.6	9.8	91	108	124	149	172	216	265	336	368	414	.9	1.1
263	7	60.0	.024	1	2.98	100.3	91.5	9.2	89	111	126	149	173	217	259	332	366	412	.6	1.4
264	2	62.7	.022	1	3.67	100.6	91.6	9.5	90	110	126	152	176	217	254	320	350	380	.8	1.7
265	7	62.0	.026	1	2.99	100.4	91.9	9.4	93	109	122	144	166	209	253	324	354	403	.8	1.2
266	3	63.3	.016	2	3.59	100.4	92.9	8.8	86	111	124	146	166	208	244	304	334	390	.7	1.3
267	3	64.5	-	-	3.07	99.3	92.3	8.8	90	107	122	146	171	213	251	331	370	416	1.1	1.4
AVERAGE		61.4	.022	1	3.06	100.2	92.2	9.3	92	112	126	149	173	217	257	326	358	405	.8	1.3
SAMPLES	102																			

† Research octane numbers above 100 determined by ASTM D1656.

District 8

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

Lower Mississippi area: Mississippi, Louisiana, eastern and southern Arkansas, and western Tennessee

Regular-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100 ml	Lead, ASTM D526, g/gal	Octane number		RVP, ASTM D323, lb	Distillation, ASTM method D86										
						Research, ASTM D908	Motor, ASTM D357		Temperature range, °F (corrected to sea level)										Percent
									IBP	Percent evaporated								End point	Resid.	Loss
										5	10	20	30	50	70	90	95			
268	3	61.4	0.012	-	2.62	94.1	88.0	8.5	93	107	117	132	148	190	253	328	354	392	1.0	1.0
269	6	61.1	.038	1	2.29	94.3	86.4	9.1	89	105	117	136	156	203	265	351	383	417	1.0	1.3
270	16	60.2	.031	1	1.92	94.7	86.3	9.0	91	107	120	139	159	206	263	341	373	413	1.0	1.3
271	12	60.6	.059	0	2.61	93.9	86.3	9.1	90	107	120	141	161	207	265	347	383	425	.9	1.7
272	2	60.7	-	-	-	93.9	85.6	9.5	92	109	120	140	160	210	271	346	378	418	1.4	1.6
273	8	60.3	.035	-	2.51	94.4	86.8	9.1	91	107	121	143	164	209	265	345	381	428	1.1	1.2
274	9	61.6	.031	0	2.89	94.3	87.1	9.4	90	105	119	141	165	211	260	334	375	421	1.0	1.7
275	15	63.4	.042	3	2.97	94.9	86.2	8.6	90	107	119	133	148	180	228	329	372	411	1.0	1.2
276	15	61.4	.028	0	2.41	94.3	86.7	8.8	92	108	123	144	164	206	256	345	380	419	1.0	1.3
277	9	61.9	.029	1	2.66	94.1	87.2	8.2	92	106	119	140	160	203	254	339	376	427	1.1	1.6
278	6	61.0	.037	-	2.40	93.5	86.1	8.9	87	103	116	138	160	208	268	347	380	419	.9	1.2
279	18	60.0	.043	1	3.02	94.1	86.1	8.7	93	107	121	142	164	214	269	343	373	415	.9	1.3
280	3	60.9	.021	-	2.62	94.4	87.9	8.9	87	106	118	137	154	194	251	346	380	430	.8	1.2
281	9	61.6	.018	-	2.96	93.4	86.9	9.2	91	106	121	141	162	206	261	334	374	418	.9	1.3
282	16	60.9	.021	1	2.63	94.4	86.9	9.0	94	109	122	142	162	205	258	336	368	414	.9	1.3
283	16	60.2	.044	0	2.55	94.2	87.0	8.3	92	108	121	141	159	203	259	329	364	411	.9	1.3
284	3	61.1	.027	-	2.78	94.0	86.6	8.5	93	111	121	141	159	199	250	326	355	413	1.1	1.9
285	6	61.2	.042	2	2.82	94.4	86.6	9.1	92	107	119	137	156	202	256	333	366	411	1.1	1.7
286	6	62.2	.041	1	2.83	94.3	86.5	8.8	90	108	118	136	154	197	253	330	370	411	1.1	1.5
AVERAGE		61.1	.033	1	2.64	94.2	86.7	8.9	91	107	120	139	159	203	258	338	373	416	1.0	1.4
SAMPLES	178																			

District 8 (Cont.)

TABLE 3. - Motor gasoline survey, summer 1969 --Continued
(Average values of different brands)

Lower Mississippi area: Mississippi, Louisiana, eastern and southern Arkansas, and western Tennessee

Premium-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100ml	Lead, ASTM D526, g/gal	Octane number: Research, ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Percent: Loss
287	8	59.5	0.050	-	3.06	99.9	92.1	9.1	91	108	124	148	173	218	263	339	374	420	1.0	1.1
288	2	62.8	-	-	-	100.4	91.6	9.4	92	108	122	148	175	225	262	344	381	426	1.0	1.9
289	12	58.3	.022	0	3.14	100.1	92.2	9.0	91	104	117	141	169	230	274	330	358	409	1.1	1.5
290	16	62.9	.019	0	2.77	100.1	92.4	9.3	89	105	119	141	165	211	254	318	346	395	.8	1.5
291	5	59.0	.011	-	3.10	100.0	92.5	8.9	85	102	115	138	164	226	274	330	370	416	.8	1.2
292	3	59.8	.002	-	3.82	100.2	93.9	9.6	88	102	111	126	138	184	243	324	352	400	.8	1.2
293	6	60.2	.025	1	3.32	100.1	92.0	9.4	87	106	117	140	167	224	272	337	363	406	1.2	1.3
294	6	61.8	.038	0	3.28	100.2	92.1	9.0	91	108	123	148	176	224	267	339	371	423	1.2	1.8
295	3	62.2	.035	-	3.18	99.9	93.3	8.2	92	111	123	145	173	231	281	349	377	430	1.3	1.7
296	16	60.5	.027	0	2.85	99.9	92.6	8.7	91	108	122	143	164	211	254	319	347	406	.9	1.3
297	16	62.5	.025	0	3.26	100.1	92.7	9.1	91	108	121	142	164	209	258	334	367	412	1.0	1.3
298	9	60.3	.021	-	3.24	99.9	92.0	9.2	91	106	120	142	165	213	265	336	368	414	.9	1.0
299	3	60.7	.008	-	3.06	100.4	92.7	8.9	86	104	114	134	153	194	250	336	359	400	1.0	1.0
300	6	61.8	.015	-	2.99	100.1	91.8	9.2	83	100	114	139	166	214	261	321	347	399	.7	1.3
301	9	62.4	.027	0	3.00	99.9	91.8	8.9	90	105	118	141	166	215	254	322	349	397	1.0	1.7
302	15	57.7	.022	0	3.00	100.2	92.3	8.9	91	109	125	149	174	220	266	334	367	413	1.0	1.5
303	15	54.1	.002	1	* .00	101.0	90.8	9.3	84	100	115	145	185	235	266	320	342	380	.9	1.4
304	9	63.0	.034	0	3.04	100.1	92.5	9.2	86	100	115	137	163	208	251	333	364	407	1.1	1.7
305	19	61.6	.013	1	3.12	99.9	92.4	9.0	90	108	122	144	166	209	250	310	342	394	.9	1.6
AVERAGE		60.6	.022	0	3.13	100.1	92.3	9.1	89	105	119	142	167	216	261	330	360	408	1.0	1.4
SAMPLES	178																			

* Not included in average for lead.

District 9

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

North Plains area: Minnesota, North Dakota, and South Dakota

Regular-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100 ml	Lead, ASTM D526, g/gal	Octane number: Research, ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Percent: Loss
306	6	61.4	0.042	1	2.13	92.3	84.5	9.0	92	108	118	135	154	200	256	344	377	409	1.0	1.3
307	6	63.0	.020	1	1.61	92.2	85.0	8.5	93	111	122	141	158	199	246	318	352	402	1.0	1.3
308	4	60.6	.088	1	1.35	92.6	83.6	9.9	89	102	114	135	155	208	274	356	384	416	1.1	1.7
309	8	60.3	.118	1	1.83	92.9	84.2	8.9	94	108	120	141	162	209	264	342	378	414	1.0	1.3
310	3	64.7	-	1	2.13	92.1	85.6	8.9	95	113	125	144	162	197	234	286	311	359	.7	1.3
311	8	60.4	.078	1	1.90	92.3	84.3	8.7	92	108	121	143	165	213	269	346	378	421	1.0	1.5
312	2	59.3	-	1	1.80	92.5	84.2	10.1	86	104	115	135	159	216	279	353	382	404	.7	1.3
313	10	64.0	.022	2	1.95	92.1	84.8	8.7	94	112	123	143	162	203	245	310	345	392	.9	1.5
314	5	61.4	.040	2	2.17	92.4	84.9	8.9	96	111	121	138	157	201	253	331	370	406	.9	1.1
315	3	62.4	.057	1	2.31	92.9	85.3	9.8	91	109	118	133	149	187	240	323	360	390	.9	1.1
316	4	60.7	.091	2	1.77	93.6	84.4	9.7	87	107	119	139	161	212	273	354	383	418	1.0	1.1
317	1	62.4	.029	1	2.38	93.0	86.0	9.5	94	106	119	138	161	203	250	335	374	410	1.0	3.0
318	4	60.1	.091	1	1.59	92.6	84.1	9.9	95	109	119	141	162	218	280	357	385	419	1.0	1.8
AVERAGE		61.6	.061	1	1.92	92.6	84.7	9.3	92	108	120	139	159	205	259	335	368	405	.9	1.5
SAMPLES	64																			

Premium-price gasoline

319	2	65.1	-	2	2.70	100.1	92.1	9.9	87	110	125	154	181	216	246	316	342	392	1.0	1.5
320	8	62.7	0.016	1	3.01	98.9	91.6	8.7	94	112	125	147	169	211	253	318	352	402	1.1	1.4
321	3	67.2	-	0	1.63	99.0	92.8	9.1	91	109	122	145	167	212	250	326	355	397	1.1	.9
322	8	63.8	.057	1	2.54	99.0	91.6	8.8	90	109	123	147	171	215	258	331	369	413	1.0	1.2
323	4	63.7	.048	1	2.22	99.6	91.5	9.4	93	113	128	157	185	221	251	325	356	404	1.1	1.5
324	6	63.2	.012	0	2.75	98.9	92.1	9.1	91	109	121	144	169	215	252	323	358	401	1.0	1.0
325	6	62.9	.020	0	2.78	99.1	91.9	8.7	89	111	127	153	177	220	255	332	366	408	1.2	1.1
326	4	62.1	.052	2	2.45	99.4	91.3	9.6	89	105	122	152	181	225	259	322	353	402	1.0	2.1
327	4	63.6	.049	3	2.59	99.2	91.3	9.8	93	110	125	150	178	216	249	317	349	401	1.1	1.5
328	3	63.5	.022	2	2.77	99.3	92.9	10.0	89	105	123	151	179	213	240	304	338	393	1.0	1.5
329	5	63.0	.027	1	2.69	98.9	91.9	9.3	90	107	120	144	168	215	250	328	364	391	1.0	1.0
330	10	67.0	.018	1	1.84	99.2	91.9	8.9	93	111	122	142	161	204	247	325	363	408	1.0	1.5
AVERAGE		64.0	.032	1	2.50	99.2	91.9	9.3	91	109	124	149	174	215	251	322	355	401	1.1	1.4
SAMPLES	63																			

District 10

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

Central Plains area: Nebraska, central and western Iowa, northwestern Missouri, and northern Kansas

Regular-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100 ml	Lead, ASTM D526, g/gal	Octane number: Research, ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): Percent evaporated: IBP	5	10	20	30	50	70	90	95	End point	Percent: Resid.	Loss
331	9	61.5	0.021	0	2.46	91.9	84.9	8.4	97	111	124	145	165	210	262	343	376	424	1.0	1.4
332	5	62.1	.028	1	2.22	92.0	85.6	8.9	90	112	124	146	167	213	264	333	368	405	1.0	1.5
333	6	62.5	.025	0	2.47	92.3	85.4	9.0	92	109	120	139	158	200	255	347	384	424	.9	1.6
334	19	59.9	.037	1	2.09	92.7	84.9	8.3	97	112	125	147	167	210	260	332	366	407	.9	1.3
335	8	62.1	.032	1	2.14	92.3	85.0	8.9	90	109	119	137	156	200	257	346	381	419	1.2	1.3
336	3	62.5	-	1	2.16	93.4	86.6	8.8	92	110	122	140	159	203	256	342	377	398	1.0	1.0
337	1	60.8	.041	1	2.40	91.6	83.8	8.0	92	112	122	142	160	208	264	342	372	426	.9	.6
338	1	58.2	.022	1	2.70	91.1	87.1	6.3	94	118	132	156	178	220	268	334	366	430	.8	.7
339	11	61.2	.015	0	2.01	92.8	85.5	8.5	96	110	124	144	165	211	265	344	381	417	1.1	1.3
340	10	62.2	.026	1	2.37	92.9	85.7	8.3	94	107	121	141	162	208	260	338	375	419	1.0	1.1
341	15	62.4	.024	1	1.95	92.2	85.3	7.8	95	112	125	145	164	208	258	332	366	407	1.1	1.1
342	10	62.5	.035	2	2.45	92.1	85.4	9.0	94	112	124	143	163	206	258	346	381	417	1.0	1.3
AVERAGE		61.5	.028	1	2.29	92.3	85.4	8.4	94	111	124	144	164	208	261	340	374	416	1.0	1.2
SAMPLES	98																			

Premium-price gasoline

343	3	64.0	-	1	2.62	99.3	91.9	8.8	96	111	124	145	168	212	249	317	352	416	0.8	1.2
344	9	63.9	0.021	0	2.80	99.0	91.8	8.9	91	110	123	146	170	213	251	334	370	417	.9	1.3
345	19	60.1	.022	1	2.67	99.6	91.8	8.2	96	111	126	149	173	216	257	323	357	406	.9	1.2
346	6	63.2	.023	1	2.83	98.9	92.1	8.9	91	111	125	148	170	213	253	332	369	413	1.0	1.5
347	5	65.7	.020	1	2.34	98.9	91.6	9.0	90	114	128	152	175	209	241	327	371	409	.9	1.4
348	9	60.4	.018	1	3.18	98.5	91.2	7.8	96	111	125	148	171	216	264	330	362	417	1.0	1.3
349	10	62.8	.009	2	2.82	99.3	91.8	9.3	89	107	121	141	163	210	256	333	366	413	.9	1.7
350	15	65.4	.027	1	2.46	99.0	92.3	8.3	96	112	125	145	166	209	250	327	367	415	.9	1.4
351	11	63.1	.017	1	2.77	98.9	91.9	8.9	96	108	123	145	167	212	258	336	372	420	1.1	1.1
352	11	63.6	.018	0	2.48	98.8	92.5	8.6	97	111	126	148	170	214	259	334	369	413	1.0	1.3
353	1	57.5	.018	1	3.30	97.0	88.0	7.1	92	116	130	154	176	224	272	336	364	420	.8	.7
354	1	56.1	.047	2	4.00	96.9	86.7	6.8	86	112	128	156	184	234	286	352	384	428	.9	1.1
AVERAGE		62.2	.022	1	2.86	98.7	91.1	8.4	93	111	125	148	171	215	258	332	367	416	.9	1.3
SAMPLES	100																			

District 11

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

South Plains area: Southern Kansas, southwestern Missouri, western Arkansas, Oklahoma, and northern Texas

Regular-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100 ml	Lead, ASTM D526, g/gal	Octane number: Research, ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): Percent evaporated: IBP	5	10	20	30	50	70	90	95	End point	Percent: Resid.	Loss
355	3	61.4	0.013	0	2.21	92.1	85.7	8.2	92	111	123	144	166	214	261	329	365	414	1.3	1.7
356	8	62.8	.052	1	2.58	92.4	86.0	9.3	89	108	120	141	163	205	248	322	368	399	.9	1.6
357	8	59.8	.038	0	2.22	92.3	85.6	8.7	92	112	126	147	169	212	261	334	369	416	1.0	1.2
358	3	63.8	.046	-	2.93	92.7	85.7	9.3	86	103	114	133	152	188	231	315	358	412	.7	1.3
359	4	63.4	.024	-	2.86	93.9	87.2	8.7	90	102	114	133	151	188	242	333	372	414	.7	1.3
360	6	62.3	.014	0	2.20	92.2	85.4	9.4	90	108	119	138	159	206	263	338	372	413	1.0	1.8
361	17	61.3	.036	1	2.27	92.9	86.0	9.0	89	108	122	142	162	207	261	343	377	415	1.1	1.2
362	20	61.3	.030	0	1.94	92.9	85.4	8.7	95	111	125	144	164	211	269	344	380	420	1.0	1.6
363	7	63.7	.094	-	3.06	92.6	86.4	8.6	89	107	119	137	155	198	253	335	375	421	.9	1.2
364	10	63.7	.035	1	3.12	92.5	86.2	9.0	93	112	123	140	156	193	241	332	368	406	1.0	1.5
365	14	61.9	.026	1	2.29	92.7	85.9	9.1	95	110	124	144	165	210	263	337	372	417	1.0	1.6
366	8	60.7	.045	3	2.57	93.7	86.4	8.5	90	106	118	137	157	203	265	338	365	407	.9	1.4
367	4	62.9	.018	1	2.35	92.9	86.5	9.0	92	113	125	144	162	203	247	327	364	407	1.2	1.9
368	13	61.6	.027	0	1.93	93.3	86.0	9.0	93	109	122	141	162	210	264	338	369	417	1.0	1.6
369	22	61.5	.035	0	3.05	92.7	85.9	8.8	92	110	123	143	163	207	260	338	375	421	1.0	1.3
370	5	59.4	.027	-	2.13	94.2	86.2	8.7	90	108	117	133	152	194	252	324	351	396	.7	1.3
371	3	62.5	.033	-	2.74	93.9	86.1	8.4	88	107	120	142	163	206	259	334	366	430	1.0	1.0
372	6	63.3	.033	2	2.76	92.3	86.4	9.1	91	109	120	139	159	206	257	336	370	409	1.2	1.6
373	3	60.5	.031	-	2.25	94.4	86.2	8.8	88	104	118	140	160	208	263	338	371	410	.6	1.4
374	6	62.6	.014	0	2.26	92.2	86.3	8.3	89	106	120	140	162	209	259	333	369	415	1.1	1.4
AVERAGE		62.0	.034	1	2.49	92.9	86.1	8.8	91	108	121	140	160	204	256	333	369	413	1.0	1.4
SAMPLES	170																			

District 11 (Cont.)

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

South Plains area: Southern Kansas, southwestern Missouri, western Arkansas, Oklahoma, and northern Texas

Premium-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100ml	Lead, ASTM D526, g/gal	Octane number: Research, ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Percent: Loss
375	10	60.2	0.018	0	3.43	99.7	92.1	9.0	89	105	117	137	158	211	266	335	360	405	1.0	1.9
376	7	63.8	.055	-	3.21	99.4	93.4	8.6	89	107	120	147	173	222	267	346	380	433	.8	1.3
377	20	64.8	.017	1	2.58	99.3	92.0	8.8	94	111	124	144	165	211	257	331	366	411	.9	1.6
378	17	57.7	.010	1	3.11	99.4	91.9	9.0	89	106	121	144	170	224	272	337	368	414	.9	1.9
379	6	62.8	.009	0	2.94	99.1	93.2	9.2	89	103	118	146	174	222	258	326	355	407	.9	2.2
380	4	58.1	.012	-	3.14	99.9	93.1	8.6	87	102	117	145	176	232	276	329	348	410	.8	1.2
381	3	65.1	.045	-	3.65	99.6	93.7	9.1	86	104	120	144	166	208	248	338	375	420	1.0	1.0
382	8	58.1	.029	0	2.19	99.3	91.6	8.8	92	111	125	148	172	218	264	332	363	412	.8	1.2
383	8	66.3	.057	1	2.58	99.3	93.1	9.2	91	110	122	147	172	209	236	318	364	407	.9	1.3
384	3	63.6	.017	0	2.43	99.7	92.3	9.2	90	105	120	143	170	219	259	328	351	399	1.1	2.4
385	6	64.8	.012	0	2.49	99.5	92.5	8.9	88	106	121	144	168	211	248	323	353	402	1.0	1.6
386	3	59.2	.015	-	3.35	100.1	93.2	8.3	87	104	124	156	184	225	253	311	339	396	.9	1.1
387	6	64.3	.014	0	3.07	99.2	92.6	9.4	89	107	118	138	160	208	255	328	364	403	1.2	1.6
388	3	63.8	.017	-	3.12	99.9	93.1	8.7	86	101	124	158	188	231	260	316	350	400	.8	1.7
389	5	64.2	.025	-	3.09	100.2	92.9	9.1	86	99	111	134	159	208	244	298	323	370	.6	.9
390	22	58.2	.014	1	3.06	99.3	91.7	8.8	91	110	125	149	174	220	264	327	357	405	1.1	1.6
391	14	59.9	.014	0	3.11	99.4	92.2	9.3	92	108	124	148	174	221	262	329	361	409	1.0	1.7
392	4	58.5	.010	1	3.50	100.0	92.7	9.1	94	108	120	141	168	240	289	344	377	414	1.1	1.9
393	8	61.9	.015	0	3.07	100.1	93.2	8.4	90	104	124	150	174	215	251	316	343	398	.9	1.9
394	14	59.3	.014	1	3.31	99.8	92.1	9.1	91	108	122	146	170	219	267	339	374	418	1.1	1.7
AVERAGE		61.7	.021	0	3.02	99.6	92.6	8.9	90	106	121	145	171	219	260	328	359	407	.9	1.6
SAMPLES	171																			

District 12

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

Southern Texas

Regular-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100ml	Lead, ASTM D526, g/gal	Octane number: Research, ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Percent: Loss
395	6	61.4	0.023	-	2.71	94.5	87.2	8.2	88	100	114	137	159	202	250	331	362	401	0.7	1.3
396	13	60.1	.040	2	3.20	94.1	86.0	8.7	92	107	122	144	164	214	272	345	376	419	.9	1.2
397	4	63.5	.028	1	3.05	95.4	86.3	8.2	90	110	119	133	146	176	231	328	363	404	.9	1.7
398	12	60.2	.028	-	2.31	93.6	86.3	8.6	94	107	122	143	164	210	265	340	374	421	1.0	1.1
399	3	63.3	.026	-	3.52	93.2	87.6	9.6	86	104	115	135	155	193	238	310	355	410	.9	1.1
400	3	63.1	-	-	3.86	91.5	87.3	7.6	90	102	124	143	160	205	250	307	331	366	.5	.5
401	11	61.2	.018	-	2.71	94.5	87.9	9.1	91	106	120	140	161	206	259	336	371	416	.9	1.0
402	13	60.4	.017	1	1.93	94.4	86.4	8.6	95	109	122	142	162	206	259	330	360	407	.9	1.1
403	4	62.1	.030	1	2.84	94.3	87.1	8.3	91	112	126	150	171	217	269	353	382	413	.8	1.2
404	3	62.8	-	-	3.15	94.0	86.7	8.4	90	107	120	137	153	187	236	336	370	404	.8	1.2
405	3	60.6	-	-	2.80	94.7	87.7	8.6	89	108	119	138	157	201	257	346	380	426	1.0	.5
406	1	60.6	.012	1	2.22	95.3	86.8	8.8	94	116	130	150	177	228	288	364	386	410	1.0	2.0
407	9	61.2	.026	-	2.05	94.0	86.9	7.7	98	109	122	142	161	204	259	337	370	418	.9	1.1
408	13	61.5	.015	1	2.94	94.2	87.4	8.7	95	108	121	140	158	202	258	337	373	418	.9	1.0
409	3	63.3	-	-	2.32	96.3	87.1	8.0	93	113	127	150	171	216	272	343	370	404	1.0	1.0
410	10	63.5	.026	2	3.06	93.9	86.9	8.9	96	108	121	141	159	199	251	337	373	415	1.0	1.3
411	3	62.7	-	-	2.74	94.7	87.2	9.2	88	107	118	136	154	192	246	342	373	410	.9	1.1
AVERAGE		61.9	.024	1	2.79	94.3	87.0	8.5	92	108	121	141	161	203	256	337	369	410	.9	1.1
SAMPLES	114																			

District 12 (Cont.)

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

Southern Texas

Premium-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100ml	Lead, ASTM D526, g/gal	Octane number: Research, †ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Percent: Loss
412	3	58.9	-	-	3.10	100.0	92.3	9.0	87	103	115	138	160	212	267	339	360	406	0.8	1.2
413	4	58.2	0.012	1	3.25	100.0	92.8	8.6	89	110	122	148	175	233	276	329	352	404	1.0	1.1
414	12	62.7	.013	1	2.95	100.5	93.0	8.6	92	106	120	140	162	212	261	322	349	391	.8	1.2
415	10	60.3	.018	-	2.92	100.1	93.1	8.6	93	107	122	146	169	212	256	330	362	417	.9	1.3
416	3	62.2	-	-	3.94	99.2	90.5	9.0	90	98	109	123	133	163	222	311	341	376	.5	1.5
417	3	59.3	.013	-	4.01	100.5	93.8	9.1	87	104	121	146	169	202	226	293	347	400	.8	1.2
418	12	58.5	.018	-	2.79	100.1	92.4	9.1	91	106	120	143	167	217	264	336	370	418	.9	1.3
419	4	55.2	.004	1	* .00	101.0	90.8	9.5	84	96	110	139	176	231	264	320	347	384	.9	1.7
420	13	60.6	.017	1	3.25	100.3	92.5	8.8	94	109	123	145	167	210	253	317	353	401	1.0	1.1
421	6	60.7	.013	-	3.04	100.3	92.5	8.6	88	103	120	145	168	210	251	309	342	402	.5	1.5
422	3	62.1	-	-	3.14	100.2	92.1	9.0	86	97	117	147	175	220	254	338	368	416	.8	1.2
423	10	58.6	.014	1	3.25	99.8	92.2	9.1	94	108	120	141	162	210	263	335	366	413	.9	1.2
424	3	63.3	-	-	3.09	100.4	91.2	8.8	88	108	121	145	168	213	253	314	340	404	.8	.7
425	13	59.8	.014	1	2.97	100.2	92.1	8.7	95	108	122	143	165	211	260	328	359	409	.9	1.1
426	9	61.3	.015	-	2.53	100.1	92.8	8.0	95	107	120	140	161	210	260	332	366	416	.9	1.4
427	1	63.1	.008	1	3.04	100.7	92.7	8.9	93	115	129	152	173	214	250	314	350	404	1.0	1.0
428	3	60.4	-	-	3.21	100.1	93.4	9.0	89	103	120	151	182	220	253	332	364	416	.8	1.2
AVERAGE		60.3	.013	1	3.16	100.2	92.4	8.8	90	105	119	143	167	212	255	323	355	405	.8	1.2
SAMPLES	112																			

† Research octane numbers above 100 determined by ASTM D1656. * Not included in average for lead.

District 13

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

South Mountain States: Southwestern Kansas, panhandles of Oklahoma and Texas, western Texas, New Mexico, Colorado, Utah, Arizona, Nevada, and eastern California

Regular-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100 ml	Lead, ASTM D526, g/gal	Octane number: Research, ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Loss
429	3	57.8	0.090	-	2.50	93.0	83.5	10.0	91	112	127	153	178	228	278	342	370	404	0.9	1.1
430	11	60.1	.025	1	2.09	91.3	85.0	7.6	92	113	128	149	169	211	261	336	370	414	1.0	1.1
431	30	61.2	.049	1	2.19	92.3	85.0	7.4	100	115	129	148	168	211	263	342	377	422	1.1	1.1
432	3	63.9	.016	0	2.35	92.1	85.6	7.2	102	118	129	141	157	195	245	347	384	417	1.2	1.8
433	3	57.5	.069	-	2.61	91.1	81.8	8.5	97	124	139	163	186	230	280	350	378	397	.9	1.1
434	3	60.2	-	-	1.93	92.3	83.3	8.6	93	114	128	150	174	223	280	359	389	419	1.3	.7
435	4	59.9	-	-	2.16	90.1	83.9	8.9	90	108	121	143	166	215	271	349	378	414	.9	1.4
436	3	63.7	.002	-	2.79	91.1	87.4	9.6	95	116	130	154	175	200	226	271	314	372	1.0	1.0
437	17	58.9	.073	1	2.47	93.8	85.6	8.2	97	114	129	150	171	215	266	340	372	420	1.0	1.2
438	6	63.6	.009	-	2.56	92.0	85.6	6.9	99	117	127	141	155	191	242	345	385	422	1.1	1.9
439	13	58.7	.110	3	2.86	93.9	86.2	8.8	96	112	127	149	171	216	267	339	372	418	1.0	1.5
440	33	61.3	.044	1	2.52	92.5	85.5	7.8	97	113	127	147	168	210	262	341	376	419	1.0	1.2
441	3	57.9	.103	-	2.17	91.3	84.0	8.8	92	110	126	154	182	233	280	338	360	391	.9	1.1
442	50	58.4	.053	1	2.65	92.6	84.9	7.6	97	113	128	149	170	215	268	343	377	421	1.0	1.2
443	16	63.7	.013	0	2.34	91.8	85.3	7.7	100	113	126	143	161	202	254	341	379	421	1.1	1.4
444	16	63.0	.027	1	2.51	92.2	85.1	8.0	94	110	124	144	164	207	258	339	378	422	1.1	1.1
445	32	59.9	.060	1	2.63	92.6	85.2	7.7	98	115	129	148	168	211	265	346	381	422	1.1	1.2
446	33	58.1	.052	1	2.51	93.0	85.2	7.7	97	114	128	149	170	213	265	343	379	425	1.1	1.3
447	24	59.3	.055	1	2.45	93.0	85.3	7.5	99	114	128	147	167	212	266	345	379	420	1.1	1.2
448	3	66.2	.092	-	3.44	91.4	83.9	9.7	91	111	123	142	164	204	244	319	350	370	.9	1.1
449	17	58.9	.050	0	2.82	93.1	85.8	7.8	97	112	127	147	168	215	269	343	375	418	1.1	1.6
450	13	59.6	.031	1	2.49	92.1	85.1	7.2	98	113	127	148	169	212	265	345	381	423	1.0	1.1
AVERAGE		60.5	.051	1	2.50	92.2	84.9	8.1	96	114	128	148	169	212	263	339	373	412	1.0	1.2
SAMPLES	336																			

District 13 (Cont.)

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

South Mountain States: Southwestern Kansas, panhandles of Oklahoma and Texas, western Texas, New Mexico, Colorado, Utah, Arizona, Nevada, and eastern California

Premium-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100 ml	Lead, ASTM D526, g/gal	Octane number: Research, ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Loss
451	16	66.2	0.010	2	2.64	99.3	94.0	8.3	95	112	126	147	169	213	253	322	362	413	1.1	1.3
452	49	61.7	.021	1	2.69	98.9	91.5	7.8	96	113	128	149	169	213	260	330	364	414	1.1	1.2
453	3	57.5	.031	-	2.98	100.1	90.9	7.4	103	124	138	159	180	217	258	327	357	418	1.0	1.0
454	33	62.5	.028	2	2.93	99.5	93.0	8.1	94	112	127	149	171	216	262	332	366	416	1.1	1.1
455	13	58.1	.042	1	3.42	100.0	92.1	8.9	93	111	127	149	172	218	265	334	367	417	1.0	1.4
456	6	63.9	.006	-	3.06	99.6	94.1	8.3	93	107	121	142	165	205	233	296	337	396	1.2	1.8
457	18	59.4	.030	1	2.41	99.3	91.2	8.5	94	113	128	150	172	217	264	333	365	413	1.0	1.4
458	3	55.1	.008	-	3.41	100.0	93.4	9.2	89	112	131	164	199	253	298	343	375	424	1.0	1.0
459	4	59.5	-	-	2.98	97.0	88.0	8.2	94	110	123	143	166	215	269	344	373	415	1.0	1.0
460	3	56.0	-	-	3.52	97.6	86.9	8.4	92	114	130	158	186	235	286	359	384	418	1.0	1.0
461	3	50.6	.002	-	3.13	100.1	91.4	8.5	96	128	151	185	209	243	277	328	360	401	1.0	1.0
462	3	67.2	.001	0	2.60	99.5	94.9	8.3	94	113	127	148	171	210	233	296	340	398	1.2	1.8
463	30	63.3	.036	1	2.46	99.0	92.0	8.0	96	112	127	148	169	215	262	335	371	419	1.1	1.1
464	11	60.3	.022	2	2.33	97.2	89.8	7.8	91	110	127	151	174	221	267	328	359	404	1.0	1.1
465	3	55.2	.017	-	3.94	100.0	92.5	10.0	87	104	123	151	178	226	270	330	356	399	1.1	1.3
466	13	60.3	.016	1	2.68	98.0	90.9	7.8	95	112	127	149	172	218	265	331	368	417	1.0	1.1
467	17	62.7	.020	1	3.05	99.8	92.8	8.4	95	112	126	147	168	211	253	319	351	399	1.0	1.6
468	3	51.6	.024	-	3.12	99.8	90.8	8.0	96	117	137	166	195	242	283	337	366	407	1.0	1.0
469	24	60.6	.025	1	3.07	99.8	92.3	7.7	96	113	127	148	169	215	261	333	365	418	1.0	1.2
470	33	59.6	.027	1	2.71	99.5	91.6	8.0	94	113	129	153	175	220	265	334	367	415	1.0	1.2
471	32	62.3	.032	1	2.69	99.2	92.3	8.1	94	112	126	149	171	215	258	329	363	411	1.0	1.3
472	17	63.6	.014	1	2.59	98.0	91.4	8.2	92	109	124	145	167	211	259	331	368	418	1.0	1.2
AVERAGE		59.9	.021	1	2.93	99.1	91.7	8.3	94	113	129	152	176	220	264	330	363	411	1.0	1.2
SAMPLES	337																			

District 14

TABLE 3. - Motor gasoline survey, summer 1969—Continued
(Average values of different brands)

North Mountain States: Wyoming, Montana, Idaho, eastern Washington, and eastern Oregon

Regular-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100 ml	Lead, ASTM D526, g/gal	Octane number: Research, † ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Loss
473	5	59.5	0.070	-	2.67	93.0	85.7	8.0	97	112	127	151	174	220	271	355	395	430	1.0	1.0
474	18	61.1	.058	1	2.53	92.2	85.0	8.8	91	110	123	143	164	209	262	342	376	417	1.1	1.3
475	4	60.0	.082	1	2.84	94.4	84.5	8.4	95	119	133	155	177	225	278	349	375	409	1.0	1.0
476	6	60.7	.066	1	2.50	93.8	85.6	9.1	96	114	127	150	172	215	262	340	377	422	.9	1.1
477	6	60.1	.066	3	2.66	92.8	85.8	8.9	96	113	126	148	170	216	269	348	383	431	1.1	1.0
478	7	60.5	.050	1	2.58	93.2	85.5	8.9	91	113	126	147	169	215	267	345	382	426	1.2	1.4
479	12	60.2	.060	1	2.81	92.1	85.3	8.6	93	111	126	149	171	215	263	338	368	403	.9	1.7
480	16	59.8	.080	1	2.60	92.8	84.1	8.4	91	111	126	148	170	216	268	343	374	418	1.0	1.3
481	4	59.4	.056	1	2.92	93.1	86.2	8.9	96	112	125	147	168	213	268	353	391	426	1.1	1.6
482	7	59.4	.059	1	2.57	92.4	85.2	8.4	95	113	126	151	176	220	274	352	385	423	1.0	1.4
483	13	60.0	.081	1	2.76	92.6	84.4	8.4	95	113	128	151	172	218	267	339	371	410	2.2	1.0
484	14	61.0	.076	-	2.42	92.3	85.7	8.5	90	111	125	147	169	214	265	341	374	421	1.1	1.2
AVERAGE		60.1	.067	1	2.66	92.9	85.3	8.6	94	113	127	149	171	216	268	345	379	420	1.1	1.3
SAMPLES	112																			

Premium-price gasoline

485	7	66.6	0.023	1	2.34	100.1	91.1	8.9	86	113	126	148	170	213	257	328	363	407	1.0	2.2
486	6	62.4	.010	1	2.56	99.4	93.0	9.1	94	111	124	149	176	221	255	322	350	401	1.0	2.0
487	6	63.6	.021	2	2.28	99.3	92.0	9.0	96	116	131	155	180	216	249	327	365	412	1.1	.9
488	4	64.4	.037	3	3.20	100.8	92.0	8.8	89	114	127	150	174	214	243	307	340	394	1.0	1.5
489	17	61.4	.036	4	2.81	98.8	91.2	9.0	92	111	125	150	176	222	264	334	367	415	1.2	1.4
490	5	62.8	.013	-	2.74	99.3	93.1	9.0	94	111	128	154	182	226	262	325	350	409	1.0	1.0
491	11	62.3	.022	-	2.67	98.5	92.5	8.4	88	112	127	149	172	216	262	335	367	417	1.0	1.3
492	13	61.6	.040	1	3.19	99.3	89.9	8.3	93	111	127	151	176	218	259	327	357	402	1.0	1.2
493	7	62.7	.024	1	2.80	98.9	91.9	8.9	93	114	128	151	176	219	253	323	353	402	.9	1.4
494	4	62.2	.018	3	2.53	100.0	93.9	8.8	90	110	124	148	173	218	252	317	345	400	1.0	2.0
495	16	61.1	.051	1	3.10	99.0	90.4	8.6	91	111	125	148	171	216	262	332	365	415	1.0	1.5
496	12	60.5	.030	1	2.84	99.0	90.8	8.8	91	110	127	151	172	221	258	318	348	384	.9	1.4
AVERAGE		62.6	.027	2	2.76	99.4	91.8	8.8	91	112	127	150	175	218	256	325	356	405	1.0	1.5
SAMPLES	108																			

† Research octane numbers above 100 determined by ASTM D1656.

District 15

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

Pacific Northwest: Western Washington and western Oregon

Regular-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100 ml	Lead, ASTM D526, g/gal	Octane number: Research, ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Loss
497	3	63.1	0.025	0	1.91	91.6	84.6	8.7	95	110	122	142	162	202	248	335	373	419	0.9	1.1
498	10	63.2	.034	1	3.08	93.9	86.2	8.7	94	112	125	145	164	208	257	336	377	421	1.1	1.8
499	10	61.7	.021	2	2.65	93.4	87.0	9.9	90	110	123	142	162	206	262	342	374	415	1.1	1.6
500	10	62.4	.029	1	2.59	93.6	86.7	9.3	94	111	124	143	163	206	257	340	375	419	1.3	1.7
501	9	62.4	.028	1	2.85	94.0	86.7	9.3	95	111	124	144	164	207	257	339	376	419	1.0	1.5
502	10	62.0	.032	1	2.59	94.0	86.3	9.2	93	110	123	144	164	208	257	341	377	419	1.0	1.8
503	6	59.9	.040	3	2.53	94.0	85.9	8.9	100	115	126	144	162	203	253	343	373	402	.9	1.3
504	10	60.9	.030	2	3.05	93.4	86.3	9.0	96	111	126	147	169	213	265	347	381	417	1.0	1.4
505	6	60.2	.030	2	2.91	93.4	86.1	8.5	97	117	128	147	167	212	265	355	386	415	1.1	1.5
AVERAGE		61.8	.030	1	2.68	93.5	86.2	9.1	95	112	125	144	164	207	258	342	377	416	1.0	1.5
SAMPLES	74																			

Premium-price gasoline

506	9	60.5	0.017	1	2.82	100.2	92.0	9.2	89	110	125	148	172	218	263	334	367	413	1.1	1.9
507	10	62.5	.012	1	2.55	100.0	91.9	9.3	92	110	125	146	168	210	255	328	360	407	1.0	1.5
508	10	63.9	.009	1	2.20	99.8	92.2	10.3	91	108	122	142	163	206	251	325	358	401	1.0	1.9
509	10	61.2	.020	1	2.94	100.3	91.7	8.6	97	113	128	151	174	217	262	333	365	414	1.2	1.5
510	3	62.0	.013	0	2.48	100.1	91.2	9.6	94	111	124	144	166	212	256	326	355	386	1.0	1.0
511	7	62.0	.014	1	2.49	100.1	91.0	8.8	96	112	126	146	172	210	251	320	347	377	.9	1.1
512	10	61.4	.013	2	2.55	100.2	90.9	9.1	93	112	126	147	168	213	259	326	358	401	1.0	1.5
513	6	60.3	.015	1	2.56	100.2	91.6	8.8	97	116	129	152	176	220	260	325	350	393	1.0	1.0
514	10	62.8	.016	1	2.70	100.2	91.7	8.8	93	111	125	147	170	213	257	328	362	411	1.1	1.4
AVERAGE		61.8	.014	1	2.59	100.1	91.6	9.2	94	111	126	147	170	213	257	327	358	400	1.0	1.4
SAMPLES	75																			

District 16

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

Northern California

Regular-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100 ml	Lead, ASTM D526, g/gal	Octane number: Research, ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid	Percent: Loss
515	3	61.9	0.051	0	1.51	91.3	83.4	8.3	97	113	128	146	165	207	252	326	355	398	1.2	1.8
516	10	63.6	.035	1	2.88	93.8	86.5	8.4	97	112	125	143	162	203	252	327	364	412	1.0	1.4
517	10	57.7	.035	2	1.29	94.1	85.5	8.7	92	110	125	148	173	224	278	344	373	415	.9	1.2
518	7	58.2	.062	2	2.13	94.9	85.5	8.9	98	116	129	148	168	210	260	339	371	409	1.0	1.1
519	10	62.4	.027	2	2.38	93.7	86.5	8.7	95	111	123	143	162	206	256	335	370	416	1.0	1.3
520	10	60.8	.062	2	1.99	94.6	86.2	9.7	93	111	125	146	167	211	264	344	378	422	1.0	2.1
521	5	60.6	.014	1	1.92	94.2	86.4	9.4	93	114	126	145	165	211	260	332	367	415	1.2	1.3
522	4	65.7	.010	1	2.20	90.9	85.3	10.2	88	110	124	144	164	207	257	326	358	401	1.0	1.8
523	10	60.7	.028	1	2.53	94.3	86.1	8.6	95	112	126	146	167	211	262	341	377	420	1.0	1.4
524	9	60.2	.033	1	2.47	93.9	86.8	10.5	90	108	122	143	164	210	262	340	374	427	1.0	1.8
525	3	63.5	.047	0	1.54	91.0	85.2	10.1	96	110	121	141	162	202	242	320	358	414	1.2	1.8
AVERAGE		61.4	.037	1	2.08	93.3	85.8	9.2	94	112	125	145	165	209	259	334	368	414	1.0	1.5
SAMPLES	81																			

Premium-price gasoline

526	10	62.0	0.019	1	2.79	100.0	91.2	9.0	94	110	124	144	164	206	254	334	370	414	1.0	1.5
527	7	57.7	.021	1	2.63	100.0	91.9	9.5	94	111	126	151	176	221	270	340	370	415	.9	1.6
528	10	57.3	.013	1	2.55	99.7	91.3	8.7	94	114	127	150	174	219	268	338	369	421	1.0	1.4
529	10	60.1	.015	1	2.97	99.8	91.1	8.6	95	111	124	144	163	205	255	339	372	420	1.0	1.2
530	3	58.7	.011	0	2.90	100.2	92.4	9.7	97	109	123	146	170	217	264	310	363	405	1.0	2.0
531	3	60.5	.057	0	3.07	100.1	93.2	10.2	90	101	116	140	165	214	255	323	350	421	.8	2.0
532	9	59.1	.028	1	3.12	99.7	91.5	10.4	88	109	123	146	169	215	266	338	371	422	1.0	1.8
533	10	56.4	.010	0	2.88	100.2	91.7	8.5	93	110	125	149	173	218	267	339	373	418	1.0	1.4
534	4	59.3	.010	1	3.13	100.0	92.1	10.1	88	109	123	143	164	211	264	334	365	413	1.0	1.9
535	5	64.7	.018	2	2.35	100.0	91.5	9.9	93	113	126	146	165	202	239	316	351	402	.8	1.2
536	10	59.2	.019	1	2.60	100.0	91.7	9.6	91	110	125	148	172	217	264	335	368	416	.9	1.7
AVERAGE		59.5	.020	1	2.82	100.0	91.8	9.5	92	110	124	146	169	213	261	331	366	415	.9	1.6
SAMPLES	81																			

District 17

TABLE 3. - Motor gasoline survey, summer 1969--Continued
(Average values of different brands)

Southern California

Regular-price gasoline

Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100ml	Lead, ASTM D526, g/gal	Octane number: Research, ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Loss
537	5	59.8	.125	2	2.66	94.9	85.8	10.7	90	103	114	134	157	212	271	349	375	409	1.0	2.0
538	5	59.9	.020	1	2.11	93.5	85.5	10.2	94	107	117	136	153	198	263	368	404	440	1.0	1.5
539	5	56.1	.047	1	1.44	93.3	84.8	8.2	97	109	119	136	154	213	316	388	409	430	.9	1.1
540	6	55.9	.040	1	1.10	94.4	85.0	8.7	94	110	124	149	176	232	291	348	372	401	1.1	1.0
541	5	57.0	.092	2	2.03	94.4	85.3	9.1	94	111	124	147	172	231	294	358	379	411	1.1	1.2
542	6	57.4	.100	3	1.85	94.1	85.1	9.0	95	110	122	144	169	222	280	357	385	417	1.1	1.2
543	6	62.2	.125	3	2.62	93.9	84.8	8.1	101	117	126	139	153	187	240	324	361	406	1.0	1.0
544	3	61.4	.018	-	1.83	91.1	85.6	9.0	97	117	130	149	168	201	236	297	368	410	.9	1.1
545	6	58.3	.107	3	2.56	94.4	85.1	8.3	100	117	128	147	166	211	270	363	395	426	.9	1.1
546	2	59.4	.147	-	2.13	91.6	83.4	9.3	95	110	123	143	162	209	273	362	394	414	1.0	1.0
AVERAGE		58.7	.082	2	2.03	93.6	85.0	9.1	96	111	123	142	163	212	273	351	384	416	1.0	1.2
SAMPLES	49																			

Premium-price gasoline

547	5	56.7	0.023	1	2.57	99.9	91.4	9.7	90	104	117	142	168	221	269	327	355	406	0.9	1.6
548	5	59.4	.052	2	2.90	100.2	91.4	10.1	88	102	118	141	168	221	261	315	341	396	1.4	1.5
549	5	57.6	.053	1	2.53	100.3	90.4	8.9	92	112	125	148	171	218	262	327	356	419	.9	1.1
550	3	57.5	.060	-	2.81	99.9	91.2	8.9	100	117	129	152	178	222	262	325	352	404	1.1	.9
551	6	57.8	.037	2	3.18	100.2	91.1	7.4	95	114	129	155	179	222	259	329	361	412	1.0	1.7
552	3	56.6	.041	-	2.54	100.2	91.4	9.0	95	110	127	152	180	228	269	325	347	408	1.0	1.5
553	6	59.2	.052	2	3.16	99.8	90.5	9.2	93	109	120	137	156	207	254	320	356	415	.9	1.0
554	6	58.4	.042	1	2.96	100.1	91.5	9.1	92	113	127	149	174	221	264	328	356	400	1.1	1.2
555	1	59.2	.030	1	3.17	100.1	91.9	10.3	85	101	115	140	167	217	263	331	357	398	.8	1.2
556	5	57.3	.034	1	2.90	100.1	91.2	9.1	93	114	129	153	179	223	263	322	354	399	1.0	1.2
557	6	58.6	.029	1	3.39	99.7	91.2	8.9	93	111	125	148	173	217	260	323	358	410	1.0	1.2
AVERAGE		58.0	.041	1	2.92	100.0	91.2	9.1	92	110	124	147	172	220	262	325	354	406	1.0	1.3
SAMPLES	51																			

TABLE 4. - Motor gasoline survey, summer 1969
(Average values for brands from different districts)

Regular-price gasoline

District No.	Name	Items (brands)	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100 ml	Lead, ASTM D526, g/gal	Octane number: Research, ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Loss
1	NORTHEAST AREA	15	60	61.0	0.040	1	2.52	94.9	86.5	9.5	89	106	120	140	161	207	263	340	372	412	1.0	1.7
2	MID-ATL. COAST REGION	19	286	60.9	.044	2	2.40	94.8	86.5	9.4	93	110	123	143	163	209	268	347	376	416	1.0	1.4
3	SOUTHEAST AREA	19	237	61.2	.035	1	2.54	94.5	86.6	9.0	90	108	121	141	161	205	260	341	370	416	.9	1.3
4	APPALACHIAN AREA	21	191	61.2	.029	2	2.48	94.5	87.0	9.5	91	110	123	144	165	210	264	338	371	414	.9	1.4
5	MICHIGAN	22	126	61.7	.045	2	2.71	94.7	86.5	9.8	91	111	124	145	166	210	264	341	375	418	.9	1.2
6	NORTH ILLINOIS AREA	16	120	61.4	.046	1	2.69	94.8	86.5	9.4	90	108	120	141	161	207	262	339	372	411	.9	1.3
7	CENTRAL MISS. AREA	21	101	61.0	.031	2	2.68	94.6	86.7	9.4	92	110	123	144	164	211	266	345	377	415	.9	1.1
8	LOWER MISS. AREA	19	178	61.1	.033	1	2.64	94.2	86.7	8.9	91	107	120	139	159	203	258	338	373	416	1.0	1.4
9	NORTH PLAINS AREA	13	64	61.6	.061	1	1.92	92.6	84.7	9.3	92	108	120	139	159	205	259	335	368	405	.9	1.5
10	CENTRAL PLAINS AREA	12	98	61.5	.028	1	2.29	92.3	85.4	8.4	94	111	124	144	164	208	261	340	374	416	1.0	1.2
11	SOUTH PLAINS AREA	20	170	62.0	.034	1	2.49	92.9	86.1	8.8	91	108	121	140	160	204	256	333	369	413	1.0	1.4
12	SOUTHERN TEXAS	17	114	61.9	.024	1	2.79	94.3	87.0	8.5	92	108	121	141	161	203	256	337	369	410	.9	1.1
13	SOUTH MOUNTAIN STATES	22	336	60.5	.051	1	2.50	92.2	84.9	8.1	96	114	128	148	169	212	263	339	373	412	1.0	1.2
14	NORTH MOUNTAIN STATES	12	112	60.1	.067	1	2.66	92.9	85.3	8.6	94	113	127	149	171	216	268	345	379	420	1.1	1.3
15	PACIFIC NORTHWEST	9	74	61.8	.030	1	2.68	93.5	86.2	9.1	95	112	125	144	164	207	258	342	377	416	1.0	1.5
16	NORTHERN CALIFORNIA	11	81	61.4	.037	1	2.08	93.3	85.8	9.2	94	112	125	145	165	209	259	334	368	414	1.0	1.5
17	SOUTHERN CALIFORNIA	10	49	58.7	.082	2	2.03	93.6	85.0	9.1	96	111	123	142	163	212	273	351	384	416	1.0	1.2
AVERAGE				61.1	.042	1	2.48	93.8	86.1	9.1	92	110	123	143	163	208	262	340	373	414	1.0	1.3
SAMPLES			2,397																			

Premium-price gasoline

1	NORTHEAST AREA	15	58	60.1	0.022	1	2.84	100.5	91.5	9.7	87	103	119	142	167	218	262	324	355	400	1.0	1.8
2	MID-ATL. COAST REGION	19	287	59.8	.021	1	2.87	100.5	91.7	9.6	90	107	121	144	167	218	262	325	355	401	.9	1.4
3	SOUTHEAST AREA	19	236	60.1	.019	1	3.04	100.3	92.2	9.3	90	106	120	141	164	214	262	328	358	406	1.0	1.4
4	APPALACHIAN AREA	22	192	60.9	.014	1	2.86	100.3	92.6	9.4	91	109	124	147	171	217	260	327	358	405	.9	1.5
5	MICHIGAN	22	120	61.8	.021	1	2.83	99.8	92.4	9.9	88	107	123	148	174	220	262	332	366	413	.8	1.5
6	NORTH ILLINOIS AREA	16	119	61.3	.018	1	2.89	99.8	92.3	9.5	90	107	121	145	168	214	256	327	360	406	.9	1.6
7	CENTRAL MISS. AREA	21	102	61.4	.022	1	3.06	100.2	92.2	9.3	92	112	126	149	173	217	257	326	358	405	.8	1.3
8	LOWER MISS. AREA	19	178	60.6	.022	0	3.13	100.1	92.3	9.1	89	105	119	142	167	216	261	330	360	408	1.0	1.4
9	NORTH PLAINS AREA	12	63	64.0	.032	1	2.50	99.2	91.9	9.3	91	109	124	149	174	215	251	322	355	401	1.1	1.4
10	CENTRAL PLAINS AREA	12	100	62.2	.022	1	2.86	98.7	91.1	8.4	93	111	125	148	171	215	258	332	367	416	.9	1.3
11	SOUTH PLAINS AREA	20	171	61.7	.021	0	3.02	99.6	92.6	8.9	90	106	121	145	171	219	260	328	359	407	.9	1.6
12	SOUTHERN TEXAS	17	112	60.3	.013	1	3.16	100.2	92.4	8.8	90	105	119	143	167	212	255	323	355	405	.8	1.2
13	SOUTH MOUNTAIN STATES	22	337	59.9	.021	1	2.93	99.1	91.7	8.3	94	113	129	152	176	220	264	330	363	411	1.0	1.2
14	NORTH MOUNTAIN STATES	12	108	62.6	.027	2	2.76	99.4	91.8	8.8	91	112	127	150	175	218	256	325	356	405	1.0	1.5
15	PACIFIC NORTHWEST	9	75	61.8	.014	1	2.59	100.1	91.6	9.2	94	111	126	147	170	213	257	327	358	400	1.0	1.4
16	NORTHERN CALIFORNIA	11	81	59.5	.020	1	2.82	100.0	91.8	9.5	92	110	124	146	169	213	261	331	366	415	.9	1.6
17	SOUTHERN CALIFORNIA	11	51	58.0	.041	1	2.92	100.0	91.2	9.1	92	110	124	147	172	220	262	325	354	406	1.0	1.3
AVERAGE				60.9	.022	1	2.89	99.9	92.0	9.2	91	108	123	146	170	216	259	327	359	406	.9	1.4
SAMPLES			2,390																			

TABLE 5. - Motor gasoline survey, summer 1969
Data for some additional grades

District	Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100ml	Lead, ASTM D526, g/gal	Octane number: Research, ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid.	Loss
										Third grade gasoline											
1	558	4	57.8	0.032	1	1.42	93.5	85.1	8.4	91	107	122	149	174	232	297	357	384	418	1.1	1.5
2	559	14	59.5	.040	2	1.68	93.1	85.3	8.9	90	109	123	144	167	219	286	350	376	421	1.3	1.3
3	560	6	60.2	.025	0	2.48	91.6	85.9	8.8	88	107	122	145	173	227	283	354	390	427	.9	1.1
3	561	7	61.0	.061	2	1.90	92.4	85.1	8.9	90	103	117	136	157	204	261	335	365	407	.8	1.5
4	562	9	59.9	.025	1	1.24	93.1	85.3	9.8	88	108	121	142	163	212	271	347	381	411	.8	1.0
5	563	4	60.6	.028	2	1.42	93.2	85.8	10.0	92	114	131	154	170	220	277	355	385	429	.6	.9
6	564	4	61.1	.056	1	2.45	94.2	86.2	9.4	89	107	122	143	164	210	264	346	380	420	.9	1.9
7	565	3	63.2	.026	1	2.84	91.2	85.6	9.5	92	110	123	143	162	205	256	332	365	402	.5	1.0
7	566	9	60.2	.042	2	1.59	92.6	85.2	9.0	91	110	122	141	161	207	268	344	375	417	.8	1.0
8	567	8	60.3	.051	-	1.56	91.8	85.1	8.8	89	106	118	137	158	204	259	339	371	417	1.2	1.1
11	568	4	60.4	.057	-	1.60	92.2	84.7	8.6	90	103	113	133	152	197	263	340	372	396	.7	1.3
12	569	10	62.4	.010	1	2.62	92.6	86.8	8.6	91	110	124	144	163	198	243	324	360	408	.9	1.1
13	570	3	60.2	.043	1	1.53	92.6	85.6	9.1	94	109	120	139	160	210	270	341	371	420	1.1	2.4
17	571	1	59.4	.050	2	1.47	91.2	84.8	10.2	90	102	116	138	160	206	266	349	381	416	.9	2.1
AVERAGE			60.4	.039	1	1.84	92.5	85.5	9.1	90	108	121	142	163	211	269	344	375	415	.9	1.4
SAMPLES		86																			

TABLE 5. - Motor gasoline survey, summer 1969 -- Continued

Data for some additional grades

District	Item	Samples	Gravity, ASTM D287, °API	Sulfur, ASTM D1266, wt pct	Gum, ASTM D381, mg/100 ml	Lead, ASTM D526, g/gal	Octane number: Research, †ASTM D908	Octane number: Motor, ASTM D357	RVP, ASTM D323, lb	Distillation, ASTM method D86: Temperature range, °F (corrected to sea level): IBP	Percent evaporated: 5	10	20	30	50	70	90	95	End point	Percent: Resid	Percent: Loss
Intermediate grade gasoline																					
1	572	4	61.0	0.028	1	1.77	96.8	86.9	9.8	88	101	117	137	157	203	263	333	362	397	0.7	1.9
2	573	17	60.0	.034	1	2.16	97.0	86.8	9.7	90	108	122	143	163	212	268	344	375	409	.9	1.5
3	574	3	58.2	.035	2	1.87	96.8	86.2	8.6	88	106	120	142	166	216	276	356	384	412	.7	.8
3	575	3	60.5	.035	-	2.74	96.2	88.2	9.1	88	105	118	138	160	209	265	341	377	420	1.0	1.0
4	576	6	61.5	.024	2	2.12	96.8	88.2	8.6	90	108	123	144	168	214	247	301	328	360	.9	1.6
7	577	3	58.2	.026	1	1.67	96.9	86.4	9.4	99	126	143	169	188	230	281	355	385	414	.6	.9
8	578	14	60.4	.027	1	2.12	96.9	87.9	8.9	89	105	118	139	162	210	262	328	357	400	.9	1.2
11	579	4	59.7	.020	-	2.13	96.9	88.4	8.6	90	106	119	139	158	198	252	314	337	394	.6	1.4
12	580	10	61.1	.016	1	2.44	96.8	88.7	8.8	90	106	118	139	159	206	257	318	342	386	.9	1.0
13	581	7	63.1	.015	2	2.45	94.3	87.4	7.3	101	118	129	145	161	202	252	334	370	415	1.2	1.8
15	582	3	61.2	.023	0	2.87	95.8	87.6	9.2	93	115	126	148	172	218	264	343	375	413	1.0	1.0
17	583	3	57.4	.049	-	2.32	96.4	87.0	9.2	95	112	125	151	179	239	292	348	366	400	1.1	.9
AVERAGE			60.2	.028	1	2.22	96.5	87.5	8.9	92	110	123	145	166	213	265	335	363	402	.9	1.3
SAMPLES		77																			
Super-premium gasoline																					
1	584	1	61.8	0.010	0	3.29	103.0	94.6	10.0	82	95	112	136	161	211	250	310	340	388	1.0	2.0
2	585	2	61.6	.016	2	3.36	102.6	94.3	9.5	89	104	115	138	161	213	253	320	349	405	1.0	2.0
3	586	1	60.0	.019	1	3.20	102.6	94.8	9.0	86	100	118	143	167	216	250	328	358	404	1.0	2.0
5	587	1	58.4	.010	1	2.45	101.9	94.5	9.7	90	106	120	144	169	222	260	310	333	386	.2	1.7
13	588	1	64.7	.040	0	2.65	101.6	94.5	7.2	102	125	139	156	172	207	239	294	329	382	1.0	1.0
14	589	1	69.0	.020	3	2.04	100.9	95.2	6.2	98	127	141	166	186	218	238	289	330	376	1.0	1.0
15	590	1	61.8	.010	3	3.10	101.6	94.9	7.3	100	123	135	154	171	212	245	298	330	387	1.0	1.0
16	591	1	60.6	.010	3	3.11	101.5	94.8	8.2	102	121	131	148	164	206	244	300	330	384	1.0	2.0
AVERAGE			62.2	.017	2	2.90	102.0	94.7	8.4	94	113	126	148	169	213	247	306	337	389	.9	1.6
SAMPLES		9																			

† Research octane numbers above 100 determined by ASTM D1656.

TABLE 6.--Cumulative percents of samples of all grades by research octane numbers by districts, motor-gasoline survey, summer 1969

Research octane number	District																	Cumulative total samples
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
90													0.9	1.8				10
91			0.6				0.9	0.5		1.5	0.3	0.8	6.9	8.6	0.7	4.9	4.8	93
92		0.2	1.6				2.8	1.6	26.8	26.8	18.9	2.4	25.7	19.5	2.0	6.1	6.7	419
93	1.6	1.8	3.9	2.8	2.8	0.4	5.5	6.1	48.0	47.5	39.5	8.5	37.7	37.1	20.3	12.3	13.5	805
94	8.7	12.5	29.6	21.6	17.1	12.3	23.4	32.5	50.4	49.5	47.9	37.0	48.8	46.6	46.4	38.0	33.7	1,591
95	44.1	43.2	49.9	48.2	44.6	42.0	48.2	48.4	50.4	49.5	49.9	48.0	50.7	50.7	49.0	49.1	48.1	2,376
96	51.2	49.7	51.1	50.5	51.4	51.0	51.8	49.7	50.4	49.5	50.1	50.4	51.6	51.1	50.3	49.7	50.0	2,510
97	53.5	52.0	51.9	51.5	51.8	51.0	53.2	52.6	50.4	51.5	51.0	54.5	59.1	57.5	50.3	49.7	51.0	2,633
98	53.5	52.3	51.9	51.8	52.2	51.0	53.7	52.9	52.0	54.5	51.3	54.5	61.0	63.3	50.3	49.7	51.0	2,674
99	53.5	53.1	52.5	53.0	64.1	61.7	57.8	55.3	91.3	89.9	75.4	55.7	70.6	74.2	50.3	53.4	51.9	3,065
100	74.8	77.7	87.4	83.2	92.4	98.4	86.7	92.1	100.0	100.0	98.6	91.1	99.6	93.7	93.5	98.8	100.0	4,525
101	99.2	98.2	98.0	100.0	99.6	100.0	100.0	99.2			100.0	100.0	99.9	100.0	99.3	99.4		4,930
102	99.2	99.8	99.6		100.0			100.0					100.0		100.0	100.0		4,955
103	100.0	100.0	100.0															4,959

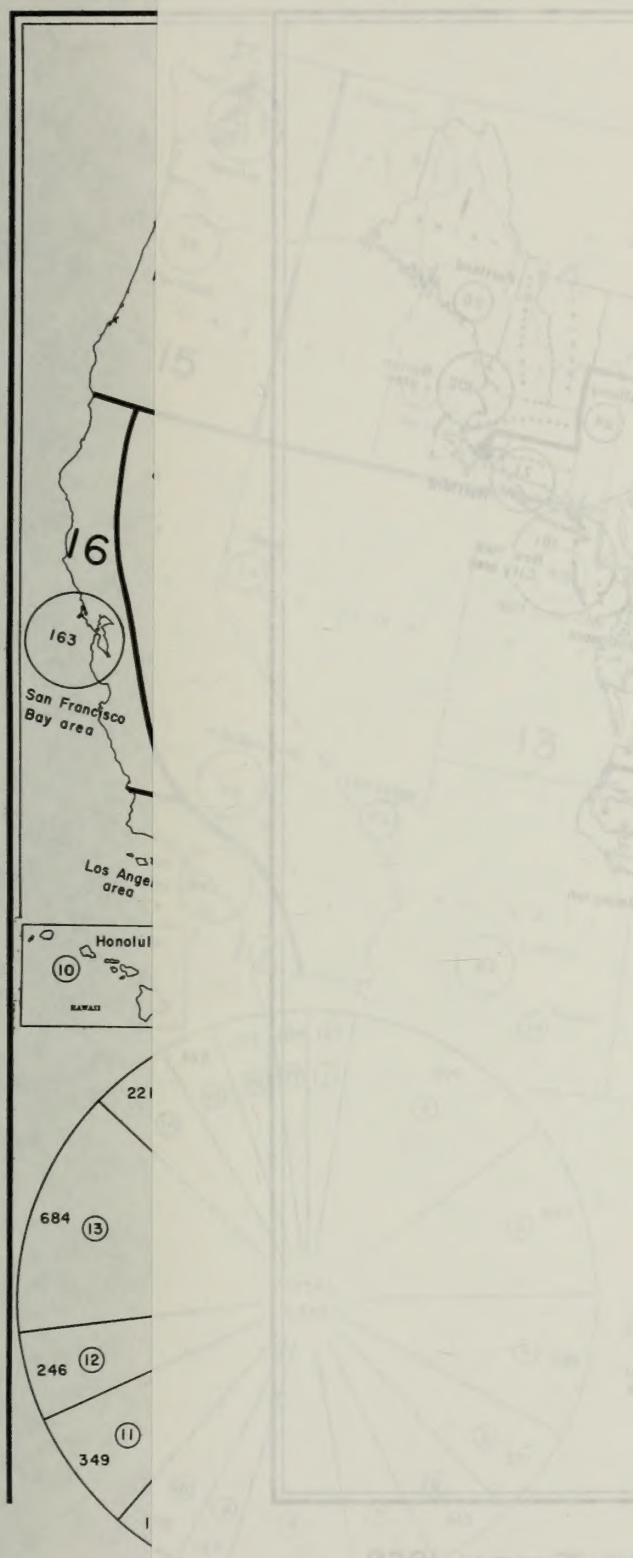
TABLE 7.--Cumulative percents of samples of all grades by motor octane numbers by districts, motor-gasoline survey, summer 1969

Motor octane number	District																	Cumulative total samples
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
81													0.1					1
82													.4					3
83									2.4	0.5			1.9	3.2		1.2	2.9	29
84		0.2		0.3			0.5	0.3	25.2	7.1	1.4		8.3	14.0	0.7	3.1	7.7	157
85	9.4	6.6	3.4	2.8	3.2	4.5	5.5	4.2	43.3	28.3	12.6	1.2	33.1	29.9	3.3	11.0	32.7	634
86	26.0	25.9	22.9	15.1	29.9	23.0	22.0	24.1	50.4	44.9	37.0	17.5	46.0	49.3	24.8	31.3	46.2	1,518
87	50.4	47.9	45.8	41.0	47.0	47.7	49.1	43.1	50.4	50.0	49.6	37.4	50.2	50.7	47.7	49.1	51.0	2,336
88	53.5	52.1	50.9	51.0	51.8	51.0	53.2	50.3	51.2	51.5	50.1	52.4	53.3	52.9	50.3	49.7	51.0	2,561
89	53.5	52.5	51.9	51.5	51.8	51.0	53.2	52.9	52.0	52.5	51.0	53.3	58.0	60.2	50.3	49.7	52.9	2,638
90	55.1	53.8	52.7	52.5	51.8	51.4	53.2	52.9	53.5	52.5	51.0	54.9	59.9	66.5	51.6	49.7	55.8	2,695
91	71.7	69.3	57.8	59.5	58.6	57.6	61.9	59.0	66.9	54.5	60.5	59.8	66.6	76.0	70.6	68.7	84.6	3,160
92	94.5	93.1	81.7	74.4	77.3	79.8	83.0	83.6	85.0	91.4	76.8	76.8	79.9	84.6	96.7	95.1	100.0	4,154
93	98.4	99.5	98.2	92.5	98.0	97.5	97.2	97.6	97.6	100.0	94.6	95.9	89.5	90.5	99.3	99.4		4,781
94	99.2	100.0	99.8	99.7	99.6	100.0	100.0	99.5	100.0		99.4	100.0	94.9	98.2	99.3	99.4		4,909
95	100.0		100.0	100.0	100.0			100.0			100.0		98.4	100.0	100.0	100.0		4,947
96													99.4					4,954
97													100.0					4,958

TABLE 8. - Locations and numbers of samples, motor gasoline survey, summer 1969

State	Location	Samples
District 1 (Northeast area)		
Maine	Portland	25
Massachusetts	Boston area	102
	2 locations	127
District 2 (Mid-Atlantic Coast area)		
Connecticut	Hartford	71
Maryland	Baltimore	75
New Jersey and New York	New York City area	181
New York	Albany	24
	Ithaca	10
Pennsylvania	Harrisburg	18
Pennsylvania and New Jersey	Philadelphia area	142
Rhode Island	Providence	2
Virginia	Richmond	83
	9 locations	606
District 3 (Southeast area)		
Alabama	Birmingham	60
	Mobile	30
Florida	Jacksonville	20
	Miami area	126
	Tampa	2
Georgia	Atlanta	115
North Carolina	Charlotte	76
	Wilmington	30
South Carolina	Charleston	4
Tennessee	Chattanooga	30
	10 locations	493
District 4 (Appalachian area)		
New York	Buffalo	92
Ohio	Cincinnati	71
	Cleveland	89
	Lima	1
	Toledo	57
Pennsylvania	Northwest Pennsylvania	30
	Pittsburgh	52
West Virginia	Charleston	6
	8 locations	398
District 5 (Michigan)		
Michigan	Central Michigan	60
	Detroit	156
	Northern Peninsula	35
	3 locations	251
District 6 (North Illinois area)		
Illinois and Indiana	Chicago area	133
Iowa	Davenport	43
Wisconsin	Madison	7
	Milwaukee	60
	4 locations	243
District 7 (Central Mississippi area)		
Indiana	Evansville	12
	Indianapolis	79
Kentucky	Louisville	62
Missouri and Illinois	St. Louis area	65
	4 locations	218
District 8 (Lower Mississippi area)		
Arkansas	Little Rock	80
Louisiana	Baton Rouge	36
	Lake Charles	2
	New Orleans	64
	Shreveport	48
Mississippi	Jackson	77
Tennessee	Memphis	71
	7 locations	378
District 9 (North Plains area)		
Minnesota	Minneapolis-St. Paul	71
North Dakota	Fargo	44
	Williston	12
	3 locations	127
District 10 (Central Plains area)		
Iowa	Des Moines	42
Kansas	Phillipsburg	10
Kansas and Missouri	Kansas City area	63
Nebraska	Omaha	73
	Scottsbluff	10
	5 locations	198
District 11 (South Plains area)		
Kansas	Coffeyville	4
	McPherson	10
	Wichita	62
Missouri	Springfield	30
Oklahoma	Bartlesville	6
	Oklahoma City	67
	Tulsa	70
Texas	Dallas-Ft. Worth	78
	Tyler	12
	Wichita Falls	10
	10 locations	349
District 12 (Southern Texas)		
Texas	Corpus Christi	48
	Houston	152
	San Antonio	46
	3 locations	246
District 13 (South Mountain States)		
Arizona	Phoenix	62
	Tucson	14
California	Bakersfield	78
Colorado	Denver	93
Nevada	Las Vegas	26
	Reno	24
New Mexico	Albuquerque	90
Texas	Amarillo	81
	Big Spring	10
	El Paso	65
	Lubbock	36
	Midland	59
Utah	Salt Lake City	46
	13 locations	684
District 14 (North Mountain States)		
Idaho	Boise	27
Montana	Billings	59
	Great Falls	6
Washington	Spokane	91
Wyoming	Casper	38
	5 locations	221
District 15 (Pacific Northwest)		
Oregon	Portland	55
Washington	Seattle	98
	2 locations	153
District 16 (Northern California)		
California	San Francisco Bay area	163
	1 location	163
District 17 (Southern California and Hawaii)		
California	Los Angeles area	94
Hawaii	Honolulu	10
	2 locations	104
	Total	91 locations 4,959

District	Locations	Samples	Percent
1	2	127	2.6
2	9	606	12.2
3	10	493	9.9
4	8	398	8.0
5	3	251	5.1
6	4	243	4.9
7	4	218	4.4
8	7	378	7.6
9	3	127	2.6
10	5	198	4.0
11	10	349	7.0
12	3	246	5.0
13	13	684	13.8
14	5	221	4.4
15	2	153	3.1
16	1	163	3.3
17	2	104	2.1
Total	91	4,959	100.0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163
San Francisco
Bay area
Los Angel
area
Honolul
10
HAWAII
221
684
13
246
12
11
349

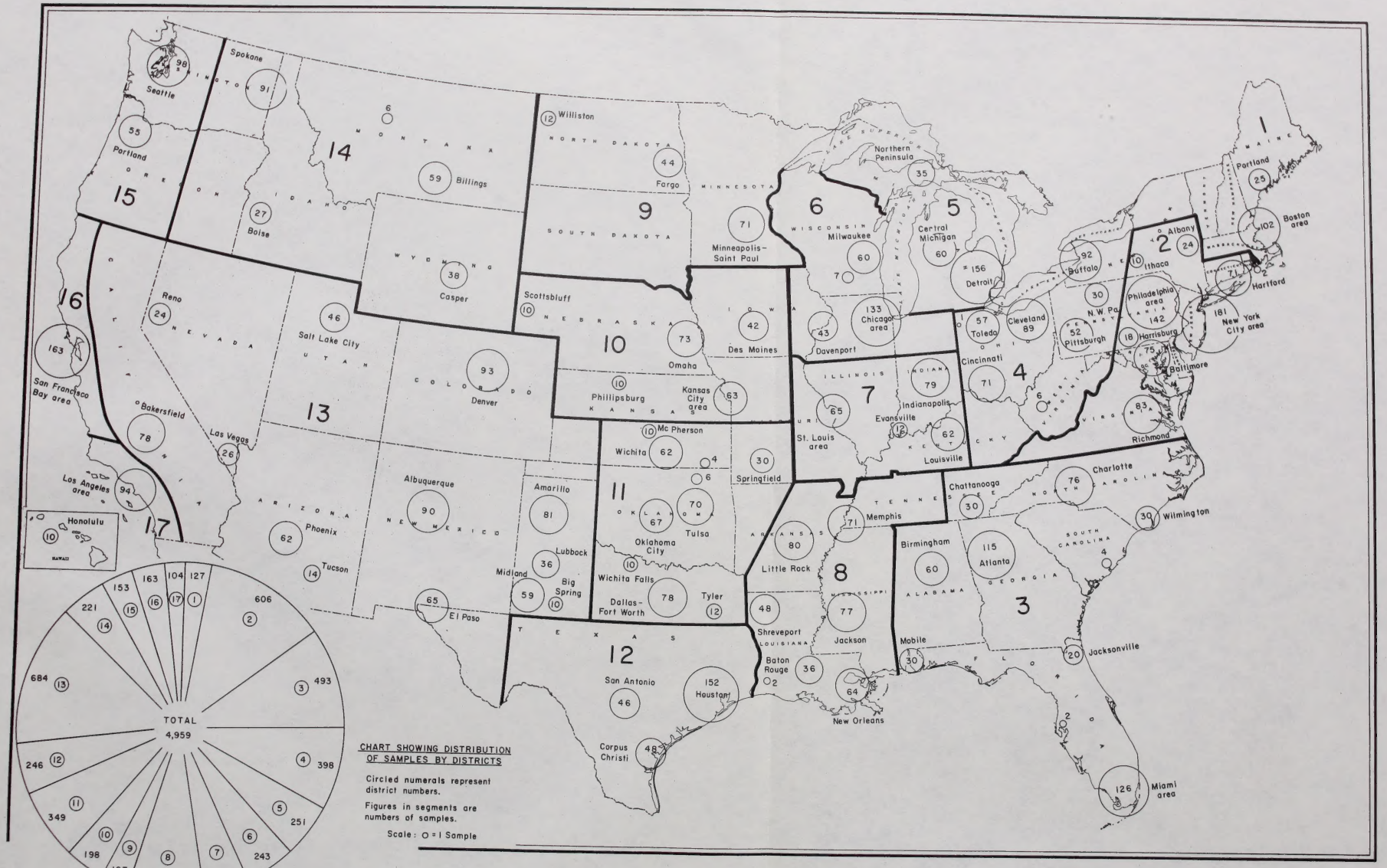

FIGURE 5.– Map Showing Locations and Numbers of Samples for the National Motor Gasoline Survey, Summer 1969.

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